IMPERIAL GAZETTEER OF INDIA

PROVINCIAL SERIES

MADRAS

I

THE PRESIDENCY; MOUNTAINS, LAKES, RIVERS, CANALS, AND HISTORIC AREAS; THE EAST COAST AND DECCAN DISTRICTS, MADRAS CITY, AND CHINGLEPUT DISTRICT

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PREFACE

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PROVINCIAL GAZETTEERS OF INDIA

MADRAS

VOLUME I

Madras Presidency (officially styled the Presidency of Fort St. George).—The southernmost Province of the Indian Empire. With the five Native States[1] which are subordinate to it, and the State of Mysore and the tiny British Province of Coorg which are all but surrounded by it, it occupies the whole of the southern portion of the peninsula. The west coast is washed by the Indian Ocean, and the east coast by the Bay of Bengal; but the northern boundary has been formed by the accidents of history and consists, from east to west, of Orissa, the Central Provinces, the State of Hyderābād, and the southernmost Districts of the Presidency of Bombay. Excluding the five Native States, the area of the Presidency is 141,705 square miles, or 20,000 square miles larger than the United Kingdom. The Native States occupy an additional area of about 10,000 square miles. Situation and boundaries. Dimensions.

Fort St. George is the fortress of Madras City, the capital of the Presidency, and was so named by its founders in 1640 after England's patron saint. The derivation of the word 'Madras' has led to much ingenious speculation, but is still uncertain. Most of the etymologies suggested are overthrown by the fact that the place was known as 'Madraspatam' before ever the English arrived at it.

The key to the greater part of the conditions prevailing in the Presidency—its climate, its rainfall, its rivers and the irrigation dependent upon them, much of its history, its tribes and castes and the varying customs they follow, the variations in the density of its population, and the distribution of its languages —is to be found in the conformation of the hill-ranges. Along Hill system.

[1] Travancore, Cochin, Pudukkottai, Banganapalle, and Sandūr.

the whole length of the western coast, at a distance from the sea varying from 50 to 100 miles, runs the range of the WESTERN GHĀTS, a steep and rugged mass averaging 4,000 and rising to 8,000 feet, the only break in which is the Pālghāt Gap in Malabar, 16 miles wide. Down the eastern coast, but at a greater distance from the sea, sweeps the chain of the EASTERN GHĀTS, a less marked formation usually about 2,000 feet in height. On their way southwards these two ranges eventually meet, and at the point of junction is the striking upheaval known as the NĪLGIRI HILLS. North of this plateau lies an elevated table-land, from 1,000 to 3,000 feet above the sea, upheld by the hills lying east and west of it, and consisting of Coorg, the State of Mysore, and the parts of the Madras Presidency immediately on the fringe of the latter.

Portions of both the Eastern and the Western Ghāt ranges are distinguished by special names. The spurs of the former which run through Kurnool District are called the NALLAMALAIS[1]; a range of the latter lying in Coimbatore District and Travancore State is known as the ANAIMALAIS; and a continuation of the same hills situated in Madura District is called the PALNIS. Besides these outliers from the two main chains several isolated blocks of hills are not connected directly with either. Chief of these are the SHEVAROYS in Salem, the PACHAIMALAIS and KOLLAIMALAIS in the same District and Trichinopoly, and the JAVĀDI HILLS in North and South Arcot.

Natural divisions.

The Presidency thus consists of a narrow strip of land between the Western Ghāts and the Indian Ocean, a broader strip between the Eastern Ghāts and the Bay of Bengal, and an elevated tract lying midway between the two. The strip along the Bay of Bengal is not, however, homogeneous throughout, as the other two tracts may be said to be. Through the western parts of its three northernmost Districts—Ganjām, Vizagapatam, and Godāvari—runs a portion of the Eastern Ghāts; and these tracts therefore not only differ in climate and physical aspects from the rest of those Districts, but the inhospitable jungle that covers them is occupied by primitive forest tribes which differ in religion, language, customs, and ethnic characteristics from the dwellers in the plains below. Within them the ordinary law of the land is in force to only a limited extent, while the Collectors exercise extended and special judicial authority (both civil and criminal) under the title of Agents to the Governor. These areas are

[1] The termination *-malai* is the Tamil for 'hill.'

therefore commonly known as the Agencies or Agency tracts. The rest of the strip along the shore of the Bay of Bengal is fairly uniform climatically and geographically, but the inhabitants of the northern part of it are Telugus, while those in the south are Tamils. These two races differ in language and other essential particulars to such an extent that it is necessary to treat separately the areas they occupy.

We thus have five natural divisions in the Madras Presidency: namely, (1) the strip facing the Indian Ocean, which may be called the West Coast; (2) the central table-land, usually known as the Deccan; (3) the Agencies; (4) the East Coast division proper, running as far south as Nellore District; and (5) the South division, comprising the remainder of the Province. The Districts included within each of these are shown in Table I at the end of this article, which also gives particulars of their area, population, &c. The limits of three of them—Godāvari, Kistna, and Nellore—have, however, been very recently (1904) altered. The work of administration had become so heavy that, to relieve their Collectors, they have been formed into the four Districts of Godāvari, Kistna, Guntūr, and Nellore. The first of these comprises the former Godāvari District to the north and east of the Godāvari river, plus the Agency of Polavaram on the south of it; Kistna District includes the rest of the tract between the Godāvari and Kistna rivers; Guntūr is made up of the country south of the Kistna with the Ongole *tāluk* of Nellore; and Nellore consists of the former District of that name less this one *tāluk*. Another change, made in 1906, which however hardly affects the statistics given in Table I, has been the separation of Anjengo and Tangasseri from the Collectorate of Malabar and their formation into a new District of Anjengo under the administrative control of the Resident in Travancore and Cochin. The two places are small outlying strips of British territory, 211 acres and 96 acres in extent, situated at a long distance from Malabar, within Travancore limits; and difficulty of access to them had been a strain on the Malabar officials quite incommensurate with their intrinsic importance.

River system. The key to the river system of the Presidency, as has already been said, is the conformation of its hills. No river has burst its way through the Western Ghāts; and, except in the natural division of the West Coast, the whole trend of the drainage is thus from west to east into the Bay of Bengal. Of the three great rivers—the GODĀVARI, the KISTNA, and the CAUVERY—the first two rise in the Bombay Presidency within 50 miles

of the Indian Ocean and flow for more than 800 miles right across the peninsula, while the third rises in the Western Ghāts in Coorg and similarly passes eastwards across the peninsula into the Bay of Bengal. All three have forced a passage for themselves through the Eastern Ghāts. The less important rivers, such as the PENNER, the PONNAIYĀR[1], and the TĀMBRAPARNI, all follow the same general direction. In the early part of their courses these rivers usually serve rather to drain the country than to water it, as they run rapidly in deep beds; but as they approach the more level ground on the coast, dams have been thrown across all of them and their water has been thereby turned to account for irrigation. The deltas of the Godāvari, Kistna, and Cauvery, in particular, are covered with wide expanses of irrigated crops which in even the severest droughts hardly ever fail.

Scenery.

It follows from what has been said regarding the hill ranges of Madras, and from the description below of the great variations in its temperature and rainfall, that the Presidency includes many varieties of climate, and therefore of scenery. Perhaps least inviting are the level, sandy, saline tracts which fringe several of the coast Districts, notably Madura and Tinnevelly. Next in monotony come the treeless stretches of black cotton soil, such as the eastern half of Bellary. The Deccan Districts with their stunted trees, their usually barren soil, and their endless successions of rocky hills, certainly repel admiration by their infertility; but an artist would find ample compensation in their wonderful colouring, which changes from hour to hour in sympathy with the infinite variety of light and atmosphere. The deltas of the three great rivers are the very opposite of the Deccan, presenting an interminable sea of green or golden rice-fields, dotted with villages surrounded by palm trees. But in all the low country the most beautiful scenery is that of the West Coast, with its heavy tropical vegetation, always green and always flourishing, and its towering background of the Western Ghāts. Among the hills, the lower ranges are always picturesque, each in its own particular manner, while those in which the rainfall is sufficient to nourish the thicker varieties of jungle-growth deserve a stronger epithet. The larger ranges are unsurpassed in boldness and grandeur by anything south of the Himālayas, while on the highest elevations of all—the Nīlgiri and Anaimalai plateaux—the quieter half-English scenery has a special charm which

[1] *Aru* is the Tamil for 'river,' and so appears as a suffix to the English form of the names of many rivers.

perhaps appeals to the European more strongly than even the more florid beauties of the intermediate levels.

Madras has no lakes, properly so called. The CHILKA LAKE at its extreme northern point in Ganjām and the PULICAT LAKE in Nellore are merely brackish lagoons separated from the sea by narrow ridges of sand, which have been formed by the constant antagonism between the tides and the streams draining the country. The COLAIR LAKE, which lies between the deltas of the Godāvari and Kistna, is a natural depression which the land-making efforts of the two rivers on each side of it have not yet succeeded in filling up. Reclamations and embankments are yearly reducing its extent. Along the west coast, the struggle between the rivers and the sea has resulted in the formation of a curious string of backwaters, which fringe the greater part of the shore of South Kanara, Malabar, and Travancore. The largest of them, the Cochin backwater, is 120 miles in length. They are much used for navigation. Lakes.

The only islands of importance are the LACCADIVES off the coast of Malabar and South Kanara, and the island of PĀMBAN between Madura District and Ceylon. Islands.

Though the Presidency is washed by the sea for 1,700 miles, there is not a single natural harbour capable of accommodating ocean-going vessels in the whole of this long line of shore, either on the east coast or on the west. Except Madras city, which possesses an artificial harbour formed by running out masonry groins into the sea, the various ports are merely open roadsteads, in which ships lie at anchor and discharge their cargo into light boats capable of crossing the never-ceasing surf. Such of these roadsteads as are situated near the mouths of any of the great rivers are in constant danger of being silted up, and a number of places which within historical times were famous ports have now been left high and dry by the retreat of the sea. The possibility of making an artificial harbour in the small bay at Vizagapatam has been investigated, and it is in contemplation to construct a port on Pāmban (Rāmeswaram) Island. Harbours.

Geologically, the Presidency is to a very large extent built up of Archaean gneisses, schists, and ancient plutonic rocks. These outcrop over all the elevated parts which lie above the deltaic shore belt and are not concealed by younger groups. Upon this platform there repose one large remnant Geology[1].

[1] The account which follows is based on material furnished by Mr. C. S. Middlemiss of the Geological Survey of India. Further particulars will be found in the *Memoirs* and *Records* of the Survey.

of the younger Purāna group, the isolated Cuddapah and Kurnool geological basin; the south-eastern extremity of the still younger Lower Gondwāna formation of the Godāvari basin; and a coastward broken belt of Upper Gondwāna and Cretaceous rocks.

Archaean group.

The Archaean group of ancient crystalline and metamorphic rocks is one that remained practically undifferentiated for a long time. Two distinct landmarks in the advance of our knowledge stand out prominently in comparatively recent years: namely, the recognition and mapping over large areas by Mr. R. Bruce Foote of a younger sub-group, the Dhārwārs of Southern India; and Mr. T. H. Holland's discovery of the charnockite family of genetically related Archaean plutonic intrusive rocks.

The Archaeans of the Madras Presidency may now be divided into: (3) Dhārwārs; (2) thin-bedded schistose gneiss; and (1) oldest gneiss.

Sub-group No. 1 probably embraces the oldest-known layer of the earth in this part of the world. It is particularly prominent in the flat elevated plains of Coimbatore and the middle and southern parts of Salem, in the south of Malabar and Bellary, and in the western parts of the Vizagapatam Agency tracts, Ganjām, and Nellore. Steatite, which is a common accessory in some parts, is frequently utilized for small domestic articles, such as fire-proof plates and bowls, while in several places in the south-west of Bellary a hard variety is worked into beautifully carved temples.

Sub-group No. 2 is less homogeneous in aspect than No. 1. It contains much mineral wealth. It is sparsely dotted about in Salem and Coimbatore, where it includes crystalline marble and iron ores. Probably, also, the enormous iron ore deposits of Kanjamalai, the Javādi Hills, and other localities belong to it. These have been worked from time immemorial, and were once smelted by the Porto Novo Iron Company. The lowest and richest band at the foot of Kanjamalai is 70 feet thick and gives an average yield of 40 per cent. of pure iron.

The Dhārwārs, sub-group No. 3, have an extensive development in Mysore, and are also to be traced through Bellary, Anantapur, Cuddapah, and the extreme northern parts of Salem, and possibly in Coimbatore and the Wynaad. They are of economic importance, because of the bedded hematitic ores of great richness in their lower parts, which are especially abundant in the Native State of Sandūr. They also carry all the chief gold-bearing reefs that have yet been

discovered in Southern India, including the important KOLĀR gold-fields in Mysore.

The Archaean plutonic rocks are distinguished from the three sub-groups already described by possessing more uniformity of structure over large areas, and a mineral composition resembling that of known igneous rocks. Hence they are considered to be consolidated relics of what were once fused magmas. The best known of them is Mr. Holland's charnockite series. Besides its first described locality at St. Thomas's Mount near Madras, this appears in the well-marked, rugged masses of the Nīlgiris, Shevaroys, and Palnis, and occurs as bands in Coimbatore, Salem, and Vizagapatam, as well as in Ganjām, South Arcot, and the Wynaad. In the neighbourhood of Pālakod in Salem it carries corundum crystals formed as a contact mineral. Test excavations have yielded $78\frac{1}{2}$ lb. of corundum to the ton of matrix. In the upland *tāluks* of Salem a very different and characteristic biotite gneissose granite builds moderately elevated plateaux surmounted by cones and *drugs*. The same variety is met with in the Wynaad, Bellary, Vizagapatam, and North and South Arcot, where it is frequently coarsely porphyritic, forming bold and picturesque domes of rock. Archaean plutonic rocks.

After the formation of these three Archaean sub-groups and their modification and metamorphism by reason of the invasion of the plutonic magmas just considered, a vast interval of time appears to have ensued, during which all the rock stages up to the top of the Dhārwārs suffered a final compression into closely packed folds, with upheaval and erosion by atmospheric agencies into great table-lands or denudation planes, before being once more depressed below the ocean to receive as sediments the still very ancient Purāna group which comes next above them. Eparchaean interval.

About the end of the Eparchaean interval, or during the early parts of the Cuddapah epoch, come a number of younger intrusive igneous rocks. Among the pegmatites in these, especially in Nellore, good mica for economic purposes is found. Other pegmatites have yielded aquamarine crystals in times past (as at Pattalai in Coimbatore), as well as fine quartz crystals and amethyst; and yet others near Sivamalai in Coimbatore have developed corundum crystals in considerable quantity, which have been dug and used by lapidaries.

Dykes of various descriptions are a very common feature over large areas of Central and Eastern Madras—especially in the Deccan Districts, North Arcot, and Salem, where they

sometimes form marked features across the plains. There are several examples of dunite or olivine-chromite rock, the principal of which forms a great mass in the CHALK HILLS near Salem, where chromite mines have been worked and veins of magnesite quarried.

The Purāna group.

The Purāna group of azoic sedimentary rocks includes in Madras what are known as the Cuddapah and Kurnool series. These are typically developed in the Districts of the same names, where they form a great crescent-shaped outlier or completely isolated basin, 200 miles long by 100 wide in its widest part. Their much more gently inclined strata give to the country an array of parallel scarps, ridges, and flat-topped plateau-like hills, averaging 1,750 feet in elevation, which easily mark it off from the surrounding lowlands and rugged uplands of Archaean origin.

The lower series, the Cuddapahs, are more than ten times as thick as the overlying Kurnools. The latter series embraces within the moderate thickness of 1,200 feet four stages in conformable descending order. The last and lowest member of these, the Banganapalle stage, is a sandstone with grits and pebble beds composed of clay, quartzite chert, and jasper pebbles, and diamonds have been found here by the natives, who have carried considerable workings into the rock and also among the distributed surface gravels derived from them. The diamonds are octahedra with curved facets, and from their freshness it has been considered that they are inherent in the rock and do not occur as pebbles.

Lower Gondwānas.

The succeeding rock system, the first in the Presidency which is fossiliferous, begins with a formation, the Gondwāna, which is a characteristically Indian fresh-water deposit with plant remains and coal-beds. Only the south-eastern extremity of one shallow trough of the Lower Gondwānas stretches into the Madras Presidency. This outcrop occurs on the left bank of the Godāvari river between 30 and 40 miles west-north-west of Rājahmundry. It includes 5 square miles near BEDADANŪRU of coarse, pale, felspathic sandstones with coaly seams, and a few similar small patches along the Godāvari, partly in the Nizām's Dominions and partly in British territory. The value of the coal-fields here has long been an important question, since they constitute the only known source of that mineral in Madras. The Bedadanūru field was originally tested by Dr. W. King, who reported unfavourably on it; but there has recently been a revival of interest in all the fields, with applications for prospecting licences.

The Upper Gondwānas are represented only by a broken belt of outliers, 15 miles broad in their widest part, along the east coast of the Presidency. This series comprises a threefold division, from 200 to 300 feet thick, of sandstones above and below with shales between. In some of the sandstones plant fossils have been found and in the shales marine fossils—among them ammonites. Upper Gondwānas.

In Trichinopoly District a narrow strip of Upper Gondwānas underlies on the west the Cretaceous beds of that area. They are very richly fossiliferous and have yielded altogether about 800 species, of which a large proportion are cephalopods and gastropods. Cretaceous beds.

Along the east coast, from Rājahmundry to Tinnevelly District, there is a peculiar formation consisting of soft sandstones and grits, which form a low slope dipping at a very slight angle towards the sea. They contain silicified wood in large quantity. Similar beds, the Warkalli beds, are found on the west coast near Quilon in analogous positions. Cuddalore sandstone.

The formation known as laterite, which is almost peculiar to India, or at least to the tropical parts of the Old World, has generally the appearance of a soil. In its normal form it is a porous argillaceous rock, much impregnated with iron peroxide. It is mottled with various tints of brown, red, and yellow, and a considerable proportion sometimes consists of white clay. It hardens on exposure and makes a useful building stone. Various forms of it are known. One is found along all the coast regions of Madras, and another on some of the higher plateaux inland (where it is about 80 feet thick), especially in the neighbourhood of Bellary and Cuddapah and in the Vizagapatam Agency, as well as on the Nīlgiris and Palnis to a modified extent. The theories to account for it are far from satisfactory at present. Some of it has recently been shown to contain a large percentage of hydrates of alumina, the ores from which aluminium is made. Laterite.

The Billa Surgam cave deposits in Kurnool District are encrusted with stalagmite. They consist of red marl full of mammalian bones, five species of which are now extinct. Some of the living forms are African species. Cave deposits.

The recent deposits of Madras include the older alluvium of the larger rivers, such as the Godāvari, Kistna, Cauvery, &c.; the coast and deltaic alluvium, from 50 to 500 feet thick; and all the younger alluvium of the present river-beds, the mudbanks of the coast, and the peat deposits on plateaux such as the Nīlgiris. At Pondicherry this formation has yielded an Recent deposits.

artesian water supply. In Tinnevelly District evidence of recent subsidence is furnished by a submerged forest.

Botany. Earlier workers.

The botany of Madras is of historic as well as intrinsic interest. While its diversities of configuration and great geographical range from north to south afford room for many different species, the Presidency has been a centre of botanical exploration for at least 250 years.

For many years, indeed, Madras was the pioneer in the study of Indian botany. The first-recorded work comes from Malabar, while it was in the hands of the Dutch. Van Rheede's *Hortus Malabaricus*, appearing at the close of the seventeenth century, is still a standard work of reference. Later, the centre of activity was transferred to the east coast, and a long list of enthusiastic collectors might be given. Chief among them should be mentioned Koenig, a follower of Linnaeus, and an officer in the Danish colony of Tranquebar. With him were soon associated the Danish missionaries Rottler, Klein, and Heyne, who formed the nucleus of the 'United Brothers,' a band of devoted botanical students. Plants were carefully collected and examined, specimens were exchanged, and, as the sphere of their work gradually extended, the flora of the northern part of the Presidency, and finally that of Bengal, received attention. Among the later members of the Brotherhood the most prominent South Indian workers were Roxburgh, who resided at Madras and Sāmalkot, and Sonnerat and Leschenault, who collected many of the mountain plants. Roxburgh described many of his species in his magnificent *Coromandel Plants*, published almost exactly a hundred years after Van Rheede's work.

With the removal of Roxburgh to Calcutta, however, the history of botany in the Madras Presidency practically ceases, the only later works of importance being Wight's *Icones Plantarum* and *Spicilegium Nilgherrense*, and Beddome's *Flora Sylvatica* and *Ferns of Southern India*. Finally, Hooker's monumental *Flora Indica* contains many hitherto unrecorded facts, as well as a summary of all previous work.

The variety of the flora.

The different species of plants in Madras may be separated conveniently according to the physical conditions of the country, and thus present to the explorer a number of well-marked and widely differing floras. By far the most interesting series is to be found in the moist, evergreen forests of the Western Ghāts. From the borders of the Bombay Presidency to the extreme south of the peninsula a succession of great forests, largely unexplored, abound in botanical rarities and include many

timber trees of the greatest value. Here and there the mountains raise their shoulders above the evergreen forests, and a sub-alpine flora is met with of orchids, gentians, and dwarf, large-flowered species. The Nīlgiris, Anaimalais, Palnis, and isolated peaks along the whole western range offer examples of this interesting flora.

On the western side, the evergreen forests descend far down towards the coast, and the change to the ordinary vegetation of the moist tropical plains is gradual and inconspicuous. On the eastern side of the Ghāts, however, a very different state of things is found. The evergreen forests are soon left behind, and the flora assumes a drier, harsher appearance. The trees cast their leaves in the hot season, and the prevalence of forest fires has caused large areas to produce nothing but coarse grasses. This 'deciduous' forest extends all along the eastern side of the Western Ghāts, along the borders of the Mysore plateau, and over the whole of the Eastern Ghāts as far as the borders of Orissa. It forms the great game country of the Presidency, and abounds in valuable economic products.

The lower hills of the eastern side of the Peninsula are less interesting from the botanical point of view. Their vegetation is a mixture of evergreen and deciduous plants of marked xerophytic or drought-loving character, low scrub jungle, and thorny bushes, intermingled with fleshy *Euphorbiaceae*, *Asclepiadeae*, and other drought-resisting plants. This dry flora passes over finally into one of almost desert character in the great stretches of uncultivated land in the plains. Of greater interest to the botanist are the red-sand deserts of Tinnevelly, called locally *teris*; the salt-collecting grounds, with their fleshy saline flora; and the mangrove swamps, with their half-submerged brackish-water forms.

Lastly, the great areas of cultivated land, from Tinnevelly to Orissa, abound in a wealth of weeds and shrubs, scattered almost impartially and giving this wide region a fairly uniform appearance, although their dissemination is largely due to cultivation. Many of these plants are common to other parts of the tropics, and perhaps this portion of the Presidency has the least characteristic flora.

Botanical collections.

Collections have been made in Madras ever since Van Rheede's time, but few of the older sets are now in the Government Herbarium. An early Madras collection appears to have been formed, but it was broken up many years ago and its contents distributed. To Dr. Bidie and the late Government Botanist, Mr. Lawson, probably belong the credit of the

foundation of the present Herbarium, in which many of Wight's specimens are to be found, as well as later collections by Gamble, Bourdillon, and other botanists. A systematic survey is now being carried on under Government auspices, and the Madras Herbarium is being rapidly added to. The present number of sheets is about 40,000, most of which are purely South Indian forms. The flora, as is to be expected in a peninsula of such extent, has numerous indigenous species. In the extreme south there are indications of relationship with Ceylon, while in the northern hills many of the Central Indian types are met with. For the rest, a great multitude of forest and other plants are not found elsewhere, and this fact alone makes the thorough study of the flora a matter of considerable importance.

Wild animals.

The distribution of the larger game of the Presidency naturally varies with the climate, the altitude, and the nature of the cover available; and as the low country seldom contains any considerable jungle the shyer game are confined to the hills. On the plains, the Indian antelope or 'black buck' is found in most Districts except on the west coast, and is especially common in the Deccan. The hunting leopard and the Indian wolf, both rare, are also found in the low country, but not on the west coast. Hyenas occur in the plains of most Districts. On the lower hills among the sparser jungle, the *nīlgai* and the four-horned antelope are seen here and there, but again not on the west coast; and the Indian gazelle or 'ravine deer' (*Gazella bennetti*) is met with as far south as the Deccan. Tigers, leopards, black bear, spotted deer, and wild hog haunt both the plains and the hills, but require thick cover. In the heavier jungle of the hills are found the little mouse deer, which is common in Malabar, the barking-deer, and the *sāmbar*. The last suffer much from the persecution of packs of wild dogs, which in parts are increasing in numbers and boldness. Bison or *gaur* are common on the Western Ghāts, including the Anaimalais and the Palnis, and on the Eastern Ghāts north of the Kistna river. Some are also left on the Javādi Hills. In the Vizagapatam Agency, but nowhere else in the Presidency, a few wild buffaloes survive. On the Nīlgiris, the Palnis, and on the Western Ghāts from the Anaimalais to nearly as far south as Cape Comorin the Nīlgiri ibex (*Hemitragus hylocrius*), which occurs nowhere else, is met with. The shooting of elephants on Government land, except specially proclaimed 'rogues,' is forbidden. These animals are common in the Western Ghāts, and in parts of Malabar are

a serious nuisance to cultivators living near the hills. On the Anaimalais a number are annually caught in pits by the Forest department; and the best of these are broken in and used either for timber-dragging or as baggage animals for the officials in the Agencies, where transport is unusually difficult, while the remainder are sold. Government pays rewards for the destruction of 'rogue' elephants, tigers, leopards, bears, and wolves.

The climate and seasons of the Presidency depend upon the variations in temperature and rainfall in different parts. Table II at the end of this article gives statistics of the temperature at selected stations in four representative months —January, the coolest month; May, the hottest; July, when the south-west monsoon has broken; and November, when the north-east monsoon is blowing. Of the several District head-quarters, Tinnevelly has the highest annual mean temperature (85·4°), closely followed by Cuddapah (84·9°), Nellore (84·7°), and Trichinopoly (84·2°). But Tinnevelly attains this unenviable position less by its great heat in the summer than by the absence of moderate coolness in the cold season. In March, April, and May, Cuddapah is considerably the hottest station in the Presidency. The three northern Districts, with Bellary, Anantapur, and Kurnool, have the advantage of a cooler cold season than any of the rest. The altitude of the Nīlgiris gives a temperature totally different from the other Districts. The annual mean at Wellington is only 62°, and in December and January slight frosts are usual. Temperature.

The local distribution of the rainfall depends mainly upon the conformation of the hill ranges. Two chief currents bring practically the whole of it. Rainfall.

The chief rain-bearing current is the south-west monsoon, which blows from the Indian Ocean from the end of May to the end of September. This carries far more moisture than the north-east monsoon; but the rain-clouds are unable to pass over the Western Ghāts, so that while in Malabar and South Kanara, on the west coast, the rain due to this monsoon varies from 100 to as much as 150 inches, the fall in the neighbouring Districts on the other side of the range (except in a tract corresponding roughly to the Agencies in the north) is everywhere under 25 inches, and in many places (e.g. the central plain of Coimbatore and Tinnevelly District) even less than 5 inches.

As the force of the south-west monsoon in north-eastern India dies away, the current curves and drives inland from the

Bay of Bengal during October, November, and December, being generally known as the north-east monsoon. The fall due to this is heaviest along a strip of the coast running from Pulicat Lake to Point Calimere in Tanjore District, where it averages over 25 inches; but as the clouds drift inland and part with their moisture they give gradually less rain, the amount received dropping to under 25 inches in the belt behind the strip of country above mentioned, and to less than 15 inches in the tract east of that again. Still farther east, the Eastern Ghāts check the course of the clouds, and in the areas west of this range, such as the Deccan, the fall is less than 10 inches.

Table III at the end of this article gives the average rainfall in each month at certain typical stations. For the year as a whole the heaviest fall in the Presidency is in the inland parts of South Kanara, where it is about 180 inches. The Wynaad country in Malabar comes next with 150 inches. In 1882 the amount registered at Vayittiri in the Wynaad was as much as 290 inches. The two driest spots in the Presidency are the centres of Bellary (annual fall 19 inches) and of Coimbatore (21 inches).

Cyclones and storms.

Cyclones may be said to be common all along the coast of the Bay of Bengal. Some account of those which have visited MADRAS CITY, where the record of them is naturally the most complete, will be found in the article on that place. They are usually most severe at the changing of the monsoons. Perhaps the most disastrous on record was that which passed over Masulipatam in Kistna District in 1864. It was accompanied by a storm wave, which swept over 80 miles of the low coast, reaching in places as far as 17 miles inland, and drowned 30,000 people.

Floods are constant, though less so on the west coast, where the rapid streams of the rivers have cut themselves deep beds. Accounts of the more serious will be found in the District articles. The Kistna and the Ponnaiyār rivers are especially liable to heavy floods.

Earthquakes.

About fifty earthquakes were recorded in the Presidency during the last century, but they were all of a mild character.

History. Prehistoric peoples.

The earliest inhabitants of Southern India of whom any traces now remain were the prehistoric builders of the cairns, barrows, kistvaens, and dolmens found in many Districts; the makers of the rude stone weapons discovered in considerable quantities on the tops of the rocky hills of the Deccan; and the authors of the more finished utensils and implements now

in course of excavation at the wonderful burial-grounds which have recently been discovered at ADICHANALLŪR and other places in Tinnevelly. Except that they may be declared to have passed from a Palaeolithic, through a Neolithic, to an Iron age, little is known or can be conjectured regarding these ancient peoples. Presumably they were of the stock named Dravidian, which is distinguished from more northern ethnic families by its comparatively low stature, its dark skin, its high nasal index, and its use of the languages, so prominent in the Presidency, known as the Dravidian family.

Legends and traditions.

The great gulf which yawns between them and the earliest historical data is vaguely bridged by legends and traditions, such as the story of Rāma's expedition through the Deccan and across ADAM'S BRIDGE to Ceylon in quest of his wife Sītā (whom Rāvana, the ten-headed king of that island, had carried off), or the many local *purānas* which remain in the keeping of the temple priests. Some of these legends have been held to refer to the great immigration of conquerors and settlers from Northern India which undoubtedly took place at an early period; but they are scarcely serious history, and not until the Muhammadans appear upon the scene is the literature of the country of any real value to the annalist.

Materials for early history.

The gap is filled to some extent by the many inscriptions on stone which record gifts to temples, by coins, and by grants of bygone dynasties engraved on copper. The transcription and examination of these is now proceeding under expert supervision and in a systematic fashion, but the work has not yet proceeded far enough to enable any final account to be written of the early fortunes of the South of India.

Asoka, 250 B.C.

The earliest historical evidence is that furnished by the edicts of the Buddhist emperor Asoka which have been discovered at JAUGADA in Ganjām and at a village in Mysore close to the border of Bellary. These perhaps go to show that about 250 B.C. at least the northern half of the Presidency formed part of the Mauryan dominions.

Pāndyas, Cholas, Cheras, and Pallavas.

The south of it was divided between the PĀNDYAS of Madura, who governed the extreme south; the CHOLAS, who held the country north and east of them; and the CHERAS (Keralas), who ruled the west coast. At some period subsequent to Asoka, the dynasty of the Pallavas of Conjeeveram rose into much prominence and extended its sway along the east coast as far north as Orissa.

The Andhras,

In the north, Mauryans were succeeded by the Andhras. They were Buddhists, and by them were erected the splendid

220 B.C. to A.D. 236. marble *stūpa* at AMARĀVATI and the other Buddhist buildings of which the ruins occur in Kistna and Guntūr Districts. Their curious leaden coins are still found in some numbers in those parts.

The Chālukyas, fifth century A.D. About the fifth century after Christ the Chālukyas, who were immigrants from more northern parts, began to grow into importance in the western Deccan. In the seventh century they divided into two branches, a Western and an Eastern. The latter conquered the Pallava kings of the VENGI country—the tract between the Kistna and Godāvari rivers and south of KALINGA—and settled in that locality, while the former remained in its original home.

The Kadambas, sixth century. Alongside it, in the south-west of the Deccan and the north of Mysore, the Kadambas, whose capital was at Banavāsi in North Kanara, now rose to power. They defeated the Pallavas of Conjeeveram and continually harassed the Western Chālukyas.

The Rāshtrakūtas, eighth to tenth centuries. The latter were also vigorously opposed by the Rāshtrakūtas of Mālkhed in the present Nizām's Dominions, who eventually overthrew them and were supreme in the western Deccan from about A.D. 750 to 950.

The Western Chālukyas, 973 to 1189. At the end of this period the Western Chālukyas once more rose to prominence and maintained their position until A.D. 1189, when they were finally overthrown by two of their own feudatories, the Yādavas of Deogiri and the Hoysalas of Dorasamudra, the modern Halebīd in Mysore.

The Chola expansion. Meanwhile, in the south and the east, the Cholas of Tanjore were rapidly extending their boundaries. By 999 they acquired by conquest the whole of the coast possessions of the Eastern Chālukyas. They had already subverted both the Pallavas and the Pāndyas, annexing the dominions of the former and controlling the destinies of the latter. These events form the first great landmark in the history of Southern India. But the Chola expansion westwards was checked by the Hoysalas, and towards the end of the twelfth century their territory in the north was taken from them by the Ganpatis of Warangal (Orangal).

The Musalmān invasion, fourteenth century. Thus at the end of the thirteenth century the three greatest dynasties in Southern India were the Hoysalas, the Cholas, and the Pāndyas. At the beginning of the fourteenth century, however, a new power—the Musalmāns of Delhi—appeared suddenly upon the scene. In 1303 the ruling king of the Khiljī dynasty of Delhi sent his first expedition into the Deccan; and seven years later, a date which makes the second

landmark in the history of Southern India, the armies of his general, Malik Kāfūr, swept like a torrent down the peninsula. The Yādavas, Hoysalas, Ganpatis, Cholas, and Pāndyas were in turn defeated and suppressed. Anarchy followed over the whole South—Musalmān governors, representatives of the old ruling families, and local chiefs struggling for supremacy, until out of the confusion rose the kingdom of VIJAYANAGAR, which from its capital at Hampi in Bellary District for the next two centuries and a half checked the southward expansion of Muhammadan power.

The Vijayanagar empire, 1336–1565.

The rise of this dynasty was dramatically rapid. The several Hindu chieftains everywhere admitted its sovereignty, the more willingly in that the only alternative was a despotism of Musalmāns; and from chiefs its rulers quickly grew into kings, and from kings into emperors. Within a century and a half from the foundation of the capital at Vijayanagar they governed the whole of the peninsula from the Kistna to Cape Comorin. The empire reached the height of its power under Krishna Deva (1509–1530), the greatest of its monarchs, contemporary with Henry VIII of England.

Its downfall, 1565.

The chief opponents of Vijayanagar had been the Sultāns of the Bahmani dynasty, founded in 1347 by a rebellious subordinate of Delhi, whose capital was at Gulbarga in what is now the Nizām's Dominions. This line crumbled to pieces at the end of the fifteenth century and was followed by five separate Musalmān kingdoms. For many years the mutual jealousies and animosities of these rendered it easy for the Vijayanagar kings to play off one of them against the other; but at length they combined, and in 1565 at the great battle of Tālikotā, the third historical landmark, they utterly defeated the Hindu forces and followed up their victory by razing the city of Vijayanagar to the ground and forcing its king to flee. The empire never recovered from the blow. One by one its local governors threw off their allegiance and established themselves as independent rulers; and Southern India passed through a second period of anarchy, during which all local power fell in many places into the hands of small chieftains called Naiks or Poligārs, who usually harassed their subjects mercilessly.

The Musalmān expansion thereafter.

The only governors of the fallen empire who established themselves in any permanency were the Naiks of Madura, and the suzerainty of the rest of the country fell gradually into the hands of the Sultāns of Bijāpur and Golconda. The former marched upon the country directly south of the Tungabhadra

river and the latter took a line farther to the eastward. By the middle of the seventeenth century the Bijāpur Sultāns had possessed themselves of most of the CARNATIC which lay above the Ghāts and of much territory below.

The Marāthās.

It was under this dynasty that the Marāthās first came into prominence. Serving first as military vassals, they eventually, in 1646, revolted openly against them and under the famous Sivajī established their independence.

Aurangzeb marches south, 1686.

In 1686 Aurangzeb, the Mughal emperor of Delhi, marched south to reduce Bijāpur and Golconda, and to crush the growing power of the Marāthās. He took Bijāpur in that year and Golconda in the next, and the territories which had been won by these two kingdoms from the Hindus thus became a portion of the Mughal empire. But with the Marāthās he was less successful. He seized Sivajī's son, Sambhājī, and put him to death in 1689; but the power of the race increased rather than declined, and they levied tribute throughout the Deccan and in other parts of the South as well, and do not disappear from Madras history until the beginning of the nineteenth century.

The Nizām becomes independent, 1724.

In 1724 Asaf Jāh, the viceroy whom the Mughal emperor had appointed to govern his conquests in the South and who bore the title of Nizām-ul-mulk, threw off all real allegiance to his suzerain and made himself virtually independent. He and his successors are known in history as the Nizāms or Sūbahdārs of the Deccan; and their chief subordinate in the South was the Nawāb of the Carnatic, otherwise called the Nawāb of Arcot.

Haidar Alī usurps Mysore.

Meanwhile the Hindu kingdom of Mysore, which had arisen from small beginnings on the ruins of the Vijayanagar empire, had become more and more powerful, owing largely to the exploits of a soldier of fortune in its army named Haidar Alī. By methods which were none too scrupulous, he rapidly gained supreme authority in the kingdom, and in 1761 he usurped its throne and began with more energy than ever to extend its possessions.

European powers in Madras.

In the middle of the eighteenth century, therefore, the native powers in the South which had to be reckoned with were the Musalmāns under the Nizām, Mysore under Haidar Alī, and the Marāthās. Meanwhile, however, various European powers had begun to establish a footing within its limits.

The Portuguese.

The Portuguese were the first nation to form a settlement there. By the beginning of the sixteenth century they had occupied Calicut and Goa on the west coast. Vasco da Gama,

the pioneer of maritime adventure, had visited that part of the country as early as 1498. For a century they prospered; but they were feebly supported at home after the union of Portugal with Spain, and eventually fell before the progress of the Dutch.

From the beginning of the seventeenth century the Dutch, who had long been powerful in the Eastern Archipelago, settled at Pulicat, Sadras, and other places along the east and west coasts. They rapidly ousted the Portuguese; but their ideas were commercial rather than imperial, the remoteness of their head-quarters at Batavia hampered them, and they soon dropped out of the race. The Dutch.

Another European nation attracted by the wealth of the East was the French. Their original settlement had been in Madagascar. This they abandoned in 1672 in favour of Mauritius and Bourbon. Later they came on to India; and in 1674 François Martin founded and fortified the town of PONDICHERRY, which has since been the French head-quarters in the peninsula. In 1742 the famous Dupleix succeeded to the governorship of the place, and rendered it the one European settlement in the South which was capable of offering any real resistance to the English East India Company. The French.

The earliest settlements of the English within the Presidency were at Nizāmpatam and Masulipatam, at which places Captain Hippon of the ship *Globe* landed in 1611 and founded factories. Five years later, settlements were planted on the west coast at Crānganūr and Calicut by the permission of the Zamorin. In 1619 another settlement was effected at Pulicat, but the jealousies of the Dutch compelled its abandonment. In 1625, two years after the massacre of the English by the Dutch at Amboyna, the Company's agents at Bantam in Java dispatched a vessel to Armagon in the present Nellore District and set up a small trading establishment there. The English. First settlements.

In 1639, owing partly to the annoyances caused to the Company's officers at Masulipatam by the subordinates of the Sultān of Golconda, within whose territories that place lay, and partly to the desire to possess a factory nearer to the real centres of the weaving and dyeing industries of the country, Francis Day, the chief official at Armagon, sought for and obtained through a subordinate of the last representative of the old Vijayanagar dynasty, who was then living at Chandragiri in North Arcot, the grant of the land on which Fort St. George now stands. A small fort was at once erected, and two years later the place became the Company's head-quarters Foundation of Madras.

on the Coromandel coast. In 1653 Fort St. George was raised to the rank of a Presidency, independent of Bantam, and in 1658 the factories in Bengal were placed under its orders. In 1690 the Company purchased from the Marāthās the land on which FORT ST. DAVID, near Cuddalore, now stands; and at the end of the century there were also English factories within the present limits of the Madras Presidency at Porto Novo, Madapollam, Vizagapatam, Anjengo, Tellicherry, and Calicut.

Struggle with the French.

Up to 1740 the Company's agents had managed to keep hemselves clear of the wars between the various native governments which were going on around them, and free from serious trouble with the other Europeans who had stations in the South. But in 1741 the War of the Austrian Succession lit the first flame of a conflict between them and the French, which lasted until the capture of Pondicherry in 1761, followed by the Peace of Paris in 1763.

Madras taken and again restored.

The first notable event in this contest was the capture of Madras by La Bourdonnais in 1746. Under the orders of Dupleix, who was then in command of the French possessions, the Governor and the chief merchants were taken prisoners to Pondicherry. Fort St. David became for the time the Company's head-quarters in the South. Madras was, however, restored to the English under the Treaty of Aix-la-Chapelle in 1749, and the Company set themselves vigorously to work to render it more defensible than it had been at the time of the French attack.

Wars of the native powers.

Peace being declared between the two nations, the forces which each of them had collected in the South engaged on opposite sides in the struggles between the native powers. Each espoused the cause of a different claimant for the Nawābship of the Carnatic, and each supported its own candidate for the office of Nizām of the Deccan. The stirring details of the severe conflicts which ensued fill many pages in the histories of the period, and concern themselves with the exploits of many Englishmen—Clive and Eyre Coote among the number—whose names will ever be famous.

War again declared with France.

In 1757 news reached India that war had again broken out in Europe between England and France, and the forces of the two nations in the South were once more at each other's throats. The advantage at first lay with the French. They captured successively the English forts at Vizagapatam, Fort St. David, and Devikottai (which last had been granted to the Company by the Marāthās of Tanjore), and in 1758 they

besieged Madras. Here, however, they were unsuccessful and eventually withdrew; and meanwhile Colonel Forde, who had been dispatched by Clive from Bengal to the Northern Circārs, had signally defeated them at Condore and captured Masulipatam. This victory resulted in the cession to the Company of a considerable tract round about the latter town which led eventually, after many vicissitudes, to the whole of the NORTHERN CIRCĀRS being granted to the British by the Mughal emperor in 1765. Farther south the struggle culminated in the battle of WANDIWĀSH, in which Eyre Coote utterly routed the French under Lally. Gingee, Arcot, and other minor French strongholds fell in quick succession; and in May, 1760, the English were in a position to attack Pondicherry itself. Lally called in the help of Haidar Alī of Mysore, but events in his own territory prevented the latter from taking any important part in the contest. Pondicherry surrendered in January, 1761. With the other French possessions, it was restored by the Peace of Paris in 1763; but the power of the French in Southern India was never again formidable, and it was thus in the Madras Presidency that the question was decided which of the European nations should be supreme in India.

End of the French power.

We have now reached the middle of the eighteenth century, when, as has been said, the native powers which had to be reckoned with were the Musalmāns under the Nizām of the Deccan and the Nawāb of the Carnatic, Mysore under Haidar Alī, and the Marāthās. The only European force of any consequence was that of the English, and between these four the struggle for the possession of the peninsula now lay. The Nizām and the Marāthās invited the English to assist them in clipping the wings of Haidar, who was encroaching upon their territories. Haidar, however, bought off both Musalmāns and Marāthās, and then made a descent upon the English possessions in the Carnatic. Fighting followed on both coasts of the peninsula; but the operations were indecisive, and peace was eventually concluded in 1769 by a treaty based on a mutual restitution of conquests.

Operations against Haidar Alī.

In 1780 broke out the next war with Haidar, who was again befriended by both the Musalmāns and the Marāthās. He descended upon the plains of the Carnatic in July of that year, burning crops and devastating villages, so that a cordon of blackened desert was formed all round the town of Madras, from Pulicat on the north to Pondicherry on the south and extending 50 miles inland.

The first Mysore War, 1780–4.

Warren Hastings, then Governor-General of Bengal, dispatched Sir Eyre Coote to Madras with reinforcements. His ability soon caused the tide of fortune to turn; but age had sapped his old energy, and it was not until after three years of severe fighting in every part of the peninsula that peace was at length made in 1784. As before, the basis of the treaty was a mutual restoration of conquests. Haidar Alī had died during the operations, in 1782, and was succeeded by his son, Tipū Sultān, a man in every way his inferior.

The second Mysore War, 1790–2.

Six years later war once more ensued with Mysore, Tipū having provoked hostilities by raiding the Native State of Travancore, which was in alliance with the British. Lord Cornwallis, the Governor-General, commanded the forces in the field in person, and this time the British were assisted by the Nizām and the Marāthās. After two years' fighting, Seringapatam, the Mysore capital, was besieged; and thereupon Tipū, in 1792, agreed to cede to the allies one half of his territories, and to pay an indemnity of 3 crores and 30 lakhs of rupees. The British share of the territory thus ceded included the country round Dindigul and the Districts of Salem and Malabar.

The third Mysore War, 1799.

Tipū then began to intrigue to draw to his own side the allies of the British, and even sent an embassy to Mauritius to invoke the aid of the French. Lord Mornington, now Governor-General, realized the danger to British supremacy in India which such action involved, and came south to deal with the situation. The Nizām and the Marāthās again joined the British. Tipū, after a feeble resistance in the field, retired to Seringapatam. The fortress was stormed on May 4, 1799, and Tipū's body was found among the slain. A representative of the Hindu dynasty, whose rights had been usurped by Haidar in 1761, was placed upon the throne of Mysore proper, and the rest of Tipū's territories were divided between the allies. The share of the British included Kanara, Coimbatore, and the Wynaad.

Acquisitions by the English in the South.

In this same year, 1799, the Marāthā Rājā of the principality of Tanjore, in return for aid received in gaining the throne, executed a treaty resigning the administration of his kingdom to the Company in consideration of an annual payment. In 1800 the Nizām ceded to the Company, in return for a subsidiary force to be established in his dominions, all the territories he had acquired from Mysore at the partitions of 1792 and 1799. These tracts included the present Districts of Bellary, Anantapur, Cuddapah, and part of Kurnool, which are

still known as the 'Ceded Districts.' When Seringapatam fell in 1799 a treasonable correspondence had been discovered between Tipū and the Nawāb of the Carnatic, who was nominally the ally of the Company. In consequence, after many negotiations, a treaty was concluded with the Nawāb in 1801, under which he resigned the government of his country to the Company, but retained the titular dignity and received a considerable stipend. The existing representative of the family bears the title of Prince of Arcot and has the position of the first native nobleman of Madras.

The Company had thus obtained possession of the whole of the present Madras Presidency from Cape Comorin to the Northern Circārs, except part of Kurnool District, the Danish station of Tranquebar, the existing French settlements at Pondicherry and other places, and the territories of the five Native States still in subordination to the Madras Government, the history of which will be found in the separate articles regarding them.

In 1839 internal mismanagement and treasonable intrigue on the part of the Nawāb of Kurnool led to the annexation of his country. Tranquebar was purchased from the Danes in 1845. In 1862 the District of North Kanara was transferred to Bombay. Since then no alterations of importance in the limits of the Presidency have occurred.

The territories thus rapidly acquired at the end of the eighteenth and beginning of the nineteenth centuries were in most cases reduced to order with little trouble. The *poligārs* in the Ceded Districts had to be suppressed by an armed force, and the turbulence of those in the extreme south necessitated more than one regular campaign. In the Northern Circārs the hill chiefs gave trouble as late as 1836. The last occasion on which the employment of regular troops has been necessary was the rebellion in the RAMPA hill-tracts of the Godāvari Agency in 1879.

Archaeology.

After the palaeolithic and neolithic implements which have been discovered in scattered sites, the oldest objects of archaeological interest in the Presidency are the prehistoric barrows, cairns, kistvaens, and dolmens found in almost all Districts, the first three of which frequently contain pottery, ashes, arms, implements, personal ornaments, &c. The chief remains of historic times consist (besides coins) of inscriptions, temples, and forts. During the last twenty years much has been done to survey, describe, and preserve these links with the past. In 1882 the first list of antiquities in the Presidency

was published, and about the same time an Archaeological Survey in charge of a specialist was set on foot, while a few years later a Government Epigraphist was appointed. These two officers make annual reports of the results of their work, and also publish the more important of their discoveries in the Imperial Series of *Reports of the Archaeological Survey of India*, and in *South Indian Inscriptions*, the *Epigraphia Indica*, and elsewhere. The Epigraphist is systematically translating and publishing the countless inscriptions on the thousands of temples in the Presidency, and his work is doing much to illuminate the existing darkness of its early history. The Archaeological Survey embraces both prehistoric and historic remains. Such prehistoric antiquities as the Madras Museum contains, including the well-known collection made in the Nīlgiris by Mr. Breeks, have been catalogued and described by Mr. Bruce Foote; and lately some extensive burial-places have been discovered at ADICHANALLŪR in Tinnevelly, the extraordinary variety and richness of the finds made in which are referred to in the notice of that place.

Architecture.

The remains belonging to historic times are chiefly specimens of religious architecture and sculpture. The more important examples are specially conserved by Government. The oldest of them are the Buddhist antiquities, found mainly in the valley of the Kistna, the most remarkable of which is the *stūpa* at AMARĀVATI. A number of mounds believed to contain Buddhist remains have been protected from molestation by order of Government, pending an opportunity for their examination by experts. Next in age come the Pallava caves and structures, of which the most famous are those at the SEVEN PAGODAS in Chingleput. Jain antiquities are frequent in South Kanara, the temples at MŪDBIDRI and the colossal statues at KĀRKALA and YENŪR being the best known. The Muhammadan architecture in the Presidency is of little interest. Of Hindu styles, the Chālukyan and Orissan are occasionally found, the former chiefly in Bellary and the latter in Ganjām, but the prevailing style is Dravidian. The golden age of this was the sixteenth and seventeenth centuries, during which the best portions of the famous temples at Madura, Rāmeswaram, Tanjore, Conjeeveram, Srīrangam, Chidambaram, Tiruvannāmalai, Vellore, and Vijayanagar were constructed. These buildings impress the imagination rather by the immense labour which has been devoted to the elaboration of the ornament in most untractable materials—monolithic groups of figures wrought in complete relief and with the

highest finish in the hardest granite being common—than by the general effect of their component parts. Too often they seem to have been erected on no set plan, and frequently the outer courts are more striking than the inner shrines, though an inversion of these conditions would have produced a greater impression. Characteristic points of the Dravidian style are its bracketed capitals, cornices with double flexure, flat ceilings—the arch being never employed—and the tall, tapering towers which crown the entrances through the walls surrounding courts. Noteworthy examples of military architecture are the forts at Gingee, Vellore, Trichinopoly, Dindigul, and Gooty. The Archaeological Survey embraces the preparation of systematic descriptions, drawings, and photographs of the more notable of all these different classes of antiquities.

Population. Its density and growth. Table I at the end of this article gives the more important results of the Census of 1901. The population in British territory at the last four enumerations has been: 31,220,973 (1871), 30,827,218 (1881), 35,630,440 (1891), 38,209,436 (1901). The decline of 1·5 per cent. in 1881 was due to the famine of 1876–8, but in the succeeding decade a rebound occurred after this visitation and the rate of increase (15·7 per cent.) was abnormal. The largest and most populous District, Vizagapatam, has an area of 17,200 square miles and 2,900,000 inhabitants. Excluding the exceptional cases of Madras City and the Nīlgiris, the average area of a District is 7,036 square miles, or rather less than that of Wales, and the average population is 1,879,000, or considerably more than that of the Principality. The density of population in the rural areas is twice as great as that of Scotland and equal to that of Germany. It is highest in the natural division of the West Coast (368 persons per square mile), and lowest in the Agencies (69). Excluding the little State of Cochin, Tanjore District (605) is the most thickly-populated area. In rich Malabar there are 100 more people to every square mile than there were thirty years ago, but in the infertile Deccan the population has remained practically stationary. During the decade 1891–1901, the inhabitants of Kistna increased faster (16 per cent.) than those of any other District, while in Tanjore, which is already crowded and whence considerable emigration takes place, the advance was less than 1 per cent.

Towns and villages. The people of the Province are mainly agricultural, and live in villages which have an average of 600 inhabitants each. Except on the west coast, where most of the houses stand in their own fenced gardens, these are usually compact collec-

tions of buildings. In the Deccan they still retain traces of the fortifications which were necessary in the troublous days preceding British occupation. About 11 per cent. of the people live in towns. Only three cities in the Presidency—Madras, Madura, and Trichinopoly—contain over 100,000 inhabitants, and only eight others over 50,000. There seems, however, to be clear evidence that, owing to a variety of reasons, a marked movement of the people into towns is gradually taking place.

Migration. Between District and District the migration is usually infinitesimal. Madras City attracts labour from the adjoining areas, and the rapidly developing deltas of the Godāvari and Kistna are being peopled to some extent by immigrants from the neighbouring country; but of the population as a whole about 96 per cent. were born in the District in which they were found on the night of the 1901 Census, and another 3 per cent. were born in the Districts immediately adjoining them. Emigration to other countries is, however, rapidly increasing; and in 1901 Burma contained 190,000 persons who had been born in Madras, Mysore State contained 237,000, and Ceylon 430,000. Large numbers also go to the Straits Settlements and Natal. Many of these emigrants eventually return with their savings to their native villages, and this movement therefore does less than might be expected to relieve the pressure of the population on the soil.

Age statistics. The ages returned (especially by women) have always been excessively inaccurate, as birthdays are not marked in India in the same way as in England, and few persons trouble to remember, even approximately, how old they are. A very large proportion return their ages as being one of the multiples of five—20, 25, 30, 35, and so on. Exact deductions from the figures are thus seldom possible. Those of the 1901 Census still bore traces of the great famine of 1876–8, twenty-five years previous, the number of persons between the ages of twenty and twenty-five being much smaller in the Districts which suffered severely from that visitation than in those which escaped it.

Vital statistics. The registration of births and deaths is by law compulsory in all municipalities and in a few of the larger villages to which Act III (Madras) of 1899 has been extended. Elsewhere no penalty is enforceable for omission to register these occurrences; and though much attention is given to the matter by the Revenue department, it cannot be claimed that the returns are yet complete or reliable, and a high death-rate in a District

may be due less to its unhealthiness than to accuracy of registration. In the Agencies of Ganjām and Vizagapatam, in certain *zamīndāri* areas in the former District and in Madura, and in the Laccadive Islands registration of vital statistics has not yet been attempted. In the municipalities the municipal staff is held responsible that the law is obeyed. In rural areas the village accountants are required to keep the returns; their work is checked by the staff of the Revenue and Sanitary departments, and the results are compiled and criticized by the District Medical and Sanitary officers and by the Sanitary Commissioner.

Though the returns are not accurate, the causes of error in any given area are fairly constant, and it is thus possible to make use of the figures in computing the effects of adverse seasons in the different Districts. When combined with the age statistics of the Census, they show that severe famines, such as that of 1876–8, tell most upon the very young and the very old, and upon males more than upon females, and that their effects are not confined to the deaths directly caused by privation, but are clearly traceable in a marked decrease in the birth-rate due to the weakening of the reproductive powers. They also show that the rate of infant mortality is extremely high, and that both sexes are considerably shorter lived than in European countries.

The subjoined table gives the birth and death rates (as registered) in the Presidency as a whole in recent years, and the mortality per thousand from certain diseases:—

Year.	Population under registration.	Ratio per thousand of registered		Deaths per thousand from			
		Births.	Deaths.	Cholera.	Small-pox.	Fever.	Bowel complaints.
1881 . .	28,676,375	25·5	16·2	0·3	0·5	7·1	0·6
1891 . .	28,513,734	32·4	26·2	3·5	1·4	8·6	1·2
1901 . .	37,315,611	25·1	21·3	2·2	0·7	7·9	1·1
1903 . .	37,355,766	31·0	22·0	0·7	0·4	8·4	1·3

It will be seen that the deaths caused by cholera and small-pox were comparatively few; and credit for this is due to the Sanitary and Vaccination departments, which, by introducing drainage and water-supply schemes in municipalities, by improving the sanitary methods of the smaller towns, and by Diseases.

adding steadily year by year to the total number who are protected by vaccination, have done much to abate the virulence of two diseases which were once the scourge of the people. The deaths returned as due to fever include many of which the real causes have not been properly diagnosed. The seasonal fever which occasions such heavy mortality in Northern India is hardly known in the South. Plague has not as yet succeeded in gaining the same foothold in Madras as in other Provinces. It has been worst in the Districts of Anantapur, Bellary, North Arcot, and Salem, all of which adjoin Mysore territory, where it has been very prevalent. The methods of combating plague have consisted chiefly in the temporary evacuation of infected villages and the thorough disinfection of the buildings within them. The people are at length beginning to realize the advantages of these measures.

Sex statistics.

In 1901 there were 545,000 more females than males in the Presidency, or 1,029 of the former to every 1,000 of the latter; but in seven Districts—Kistna, Nellore, Cuddapah, Kurnool, Bellary, Anantapur, and Chingleput—which form a compact block of country in the centre, there always exists a preponderance of males which has never been satisfactorily explained. It cannot, for several reasons, be entirely due to the omission of women at the enumerations, nor to the migration to this area of large numbers of men. It is noticeable that in the large towns generally the proportion of women is lower than in rural areas, the reason being that the labour market of these places attracts the able-bodied men of the surrounding country.

Marriage.

As in other parts of India, the three distinctive features of the statistics of marriage in Madras are its universality, the early age at which it takes place, and the high proportion which the number of widows bears to that of widowers. As is well-known, every Hindu desires a son to light his funeral pyre when he dies; early marriage is encouraged by the example of the Brāhmans, and by the difficulty of procuring brides and bridegrooms which the numerous prohibited degrees of marriage involve; and the practice of the upper classes in the matter has caused it to be considered irregular for a widow to remarry. Consequently, while in England and Wales, according to recent figures, 41 per cent. of the males and 39 per cent. of the females over the age of 15 are unmarried, in Madras in 1901 the corresponding figures were only 25 and 15. In the former country not one male

or female in 10,000 under the age of 15 is married or widowed, while in this Presidency 1 per cent. of the boys and 9 per cent. of the girls under this age had entered into the bonds of matrimony; and while in England and Wales there are 231 widows to every 100 widowers, in Madras there were 506. Among Musalmāns and Christians, however, these three distinctive features are much less pronounced than among Hindus, neither adult marriage nor widow remarriage being discouraged by their faiths; and moreover a perceptible improvement in the degree to which all three of them prevail among Hindus, and even among Brāhmans, is at length visible in the 1901 Census figures.

The statistics of civil condition at the last two enumerations are appended:—

Civil condition.	1891.			1901.		
	Total.	Males.	Females.	Total.	Males.	Females.
Unmarried	16,191,875	9,488,413	6,703,462	17,953,437	10,408,471	7,544,966
Married .	15,370,166	7,519,174	7,850,992	15,829,992	7,702,871	8,127,121
Widowed .	4,053,642	604,791	3,448,851	4,426,007	729,942	3,696,065
Not stated	14,757	7,017	7,740	..	..	..

Owing, probably, to the former prevalence of polyandry, inheritance on the west coast is usually through the mother. Polyandry, though now extremely rare, survives there still, and also among two or three Hindu castes elsewhere. Polygamy is permitted to both Hindus and Musalmāns, but financial reasons restrict its practice. Divorce is freely allowed among Musalmāns, but with Hindus is customary only in the lower castes.

The most noticeable point about the languages of the people Language. is the preponderance of those which belong to the Dravidian family. Over 91 per cent. of the population speak vernaculars of this family, while in India as a whole the percentage is only 20. The statistics of the last two census years are given below:—

Languages spoken.	1891.	1901.
Tamil	14,076,989	15,182,957
Telugu	13,653,674	14,276,509
Malayālam . . .	2,688,332	2,861,297
Kanarese	1,445,650	1,518,579
Oriyā	1,292,163	1,809,314
Hindustāni . . .	817,146	880,145
Others	1,656,486	1,680,635

The first four languages shown are Dravidian. Tamil is the tongue of the southern Districts of the east coast, Telugu that of the northern, Malayālam that of the west coast District of Malabar, while Kanarese is spoken in the upland regions bordering on Mysore, and is also the official language in South Kanara. Oriyā is almost confined to the two northernmost Districts of Ganjām and Vizagapatam, and Hindustāni is the vernacular of the Musalmāns of purer extraction. Marāthī and its dialect Konkani are spoken by the considerable colonies of Marāthās whom the various invasions of that race have planted in the Presidency (those in Bellary and Tanjore are instances), or who have overflowed into South Kanara District from Bombay. These seven languages are the only ones which have a written character and (except Konkani) a literature of their own, though some of the others borrow characters for use in writing. Their written idiom generally differs very greatly from that used in the everyday speech of the masses.

In the hill and forest tracts are found several languages which survive in consequence of the geographical isolation of those who speak them. In the Agencies of the three northern Districts, Khond, Savara, Gadaba, Koya, and Gondī are spoken by the tribes from which they take their names; on the Nīlgiri plateau the Todas, Kotas, and Badagas each speak a language which is not found elsewhere; the dialects of Kurumba, Kasuba, and Irula are used by sections of certain castes which still live in the hills, though their brethren in the low country have dropped them in favour of the better known tongues; and the foreign gipsy race of the Kuravans or Yerukalas, like gipsies elsewhere, cling to their own patois wherever they roam.

The result of all this is an extraordinary diversity of tongues. In only seven Districts of Madras do as many as 90 per cent. of the people speak the same language, while in as many as four not even 50 per cent. of them speak the same language. In South Kanara five different vernaculars—Tulu, Malayālam, Kanarese, Konkani, and Marāthī—are spoken by at least 2 per cent. of the population; in the Vizagapatam Agency six, namely, Oriyā, Khond, Telugu, Savara, Poroja, and Gadaba; and in the Nīlgiris eight, namely, Tamil, Badaga, Kanarese, Malayālam, Telugu, Hindustāni, English, and Kurumba.

Caste, tribe, and race.

The exigencies of space preclude any but the most general reference to the very many castes, tribes, and races of the Presidency. The 1901 Census Report distinguished 450 communities of all degrees of civilization and enlightenment, from the Brāhmans, the heirs to systems of religion and philosophy

which were already old when the Romans invaded Britain, down to the Khonds of the Agency tracts, who within recent memory practised human sacrifice to secure plentiful harvests. The great majority are of Dravidian stock, and have the medium stature, the unusually dark (almost black) skin, the curly (not woolly) hair, the high nasal index, and the dolichocephalic type of skull which distinguish that race. In the Kanarese country, however, brachycephalic heads are common. A systematic Ethnographic Survey of the Presidency is now in progress.

Of the Hindu castes of Madras the five largest are the Kāpus (2,576,000 in 1901), the Pallis (2,554,000), the Vellālas (2,379,000), the Paraiyans (2,153,000), and the Mālas (1,405,000). The traditional occupation of all these (though the Pallis are less conservative than the other four) is agriculture, the Kāpus and Vellālas being cultivators of their own land, while the others are farm-labourers. Next in numerical strength come the Brāhmans (1,199,000), whose traditional calling is that of priest and teacher. Proportionately to the Hindu and Animist population generally Brāhmans are most numerous in the Districts of South Kanara, Ganjām, and Tanjore, and least so (only 15 in every 1,000) in the Nīlgiris and the three Agency tracts. Hindu castes.

But these large communities are by no means homogeneous throughout. They are divided and subdivided into endless sub-castes, which keep severely apart from one another and usually decline to intermarry or even to eat together. Nor is it the case that they all adhere to their traditional occupations. Census statistics show that one-fourth of the Paraiyans and 12 per cent. of the Mālas have so far risen in the world as to become occupiers and even owners of land, instead of continuing to be predial serfs, while of the Brāhmans 60 per cent. have left their traditional callings for agriculture, and others have even taken to trade.

These facts are not, however, an indication that the bonds of caste are weakening. In the all-essential matter of marriage their influence is perhaps becoming stronger, and the limits within his sub-caste outside which a Hindu may not take a bride are narrowing rather than expanding. A sign of the many disabilities which caste restrictions still impose is the energy with which a number of Hindu communities are endeavouring to improve their position in the scale accorded to them by their co-religionists. The Brāhmans are the acknowledged heads of Hindu society, and their social customs

are therefore considered to be the most correct. A caste, or a subdivision of a caste, which desires to improve its position, will frequently, therefore, imitate Brāhman ways as far as it dares, quitting callings considered degrading, taking to vegetarianism, infant marriage, and the prohibition of widow remarriage, inviting Brāhmans of the less scrupulous kinds to officiate at its domestic ceremonies and remodel them in partial accordance with Brāhmanical forms and ritual, and changing its name for one with less humiliating associations. Pretensions of this kind are seldom, however, meekly admitted by the superiors or equals of the aspiring community, or even by their inferiors. The most notable recent protest against such innovations was the Tinnevelly disturbance of 1899, occasioned by the Maravans' refusal to admit the claims of the Shānāns (who by tradition are toddy-drawers and so are supposed to carry pollution) to be Kshattriyas and to enter Hindu temples. Revolts against the traditional decrees of caste are, however, more often silent and gradual than open and avowed. The usual course of events is for a few families of a sub-caste who have risen in the world to hold aloof gradually from their former equals, to adopt some of the Brāhmanical usages, and to look higher than before among the other subdivisions of the caste for brides for their sons and husbands for their daughters. In this way new sub-castes, and even new castes, are constantly originating.

Musalmān tribes.

The Musalmāns of Madras are of three main classes—firstly, immigrants from outside, or their descendants; secondly, the offspring of these by Hindu women of the country; and thirdly, natives of the country who have gone over to Islām. It is not, however, possible to give the relative strength of these groups, as members of the last two of them frequently call themselves by the tribe-names which in strictness belong only to the first. The Māppillas and Labbais, however, who are admittedly outside the first group, number 907,000 and 407,000 respectively, while the three most numerous tribes included within the first group—Shaikhs, Saiyids, and Pathāns—number 787,000, 152,000, and 95,000. The religious and social observances of the mixed races partake largely of the forms current among Hindus, and even those of the purer stock are tinged by Hindu influences.

Religions and sects.

Of every 100 people in the Presidency 89 are Hindus, 6 are Musalmāns, 3 are Christians, and 2 are Animists: that is, worshippers of souls and spirits not included among the gods of the Hindu pantheon. Jains number only 27,000, most of them

being found in South Kanara and North and South Arcot; Pārsīs, 350; and Buddhists, 240. The numbers of the followers of the chief religions according to the last two enumerations are given below:—

Religion.	1891.	1901.
Hindus	31,998,245	34,048,091
Animists	472,808	641,730
Musalmāns	2,250,386	2,467,351
Christians	865,528	1,024,071
Others	43,473	28,193

Hindus preponderate enormously. If Animists be included with them (and the line of differentiation between the two is ill defined), they constitute 80 per cent. of the population of every District except Malabar, and as much as 97 per cent. in the three northern Districts of Ganjām, Vizagapatam, and Godāvari. Their preponderance is, however, slowly declining, as they continue to increase less rapidly than either the Musalmāns—who are apparently more prolific and certainly more given to proselytizing—or the Christians. By sect, most of them are followers of Vishnu or Siva, the former predominating in the Telugu country and the latter in the extreme South. In the western Deccan a large number belong to the sect of Lingāyats, the members of which reverence Siva and his symbol the *lingam*, reject the claims of Brāhmans to religious supremacy, and affect to disregard all distinctions of caste. Hindus.

Musalmāns are proportionately most numerous in Malabar and in the Deccan. The former District contains more than one-third of the whole number of this faith in the Presidency, the majority being of the race of Māppillas, whose fanatical outbreaks have given them an unenviable notoriety. Nearly all the Musalmāns of Madras are Sunnis by sect. The few notable mosques which they have erected are adaptations, tinged with Hindu influence, of the styles prevalent in Northern India. Musalmāns.

The rapid advance in the numbers of the native Christian population has been a marked feature in recent years. Since 1871 they have increased by 99 per cent., compared with an advance in the population as a whole of 22 per cent.: that is, they have multiplied between four and five times as fast as the people generally. Most of the converts are drawn from the lowest classes of society; but they have made excellent use of the opportunities placed before them, and by their educational superiority and their manner of life are earning for themselves Christians.

a constantly improving position. Native Christians are proportionately most numerous in Tinnevelly and South Kanara. The total Christian population of Madras now numbers over a million, of whom only 14,000 are Europeans and 26,000 Eurasians. Of this total, 62 per cent. belong to the Church of Rome, 14 per cent. to the Anglican communion, and 12 per cent. are Baptists. The only other sects largely represented are Lutherans and Congregationalists.

The Presidency includes three Protestant Bishoprics, those of Madras, Madura and Tinnevelly, and Travancore and Cochin, while the Roman Catholic Church is represented by an Archbishop and three Bishops, those of Mylapore, Vizagapatam, and Cochin, besides missionary bishops. The Syrian Church on the West Coast has a separate organization.

Chief Christian missions.

A history of the Christian missions in Southern India would fill many pages. Excluding the legendary visit of St. Thomas the Apostle, the earliest mission was that of the Portuguese Franciscans to the West Coast in 1500. The Jesuits began their labours in 1542, their first missionary being St. Francis Xavier, who worked in Tinnevelly and was buried at Goa in 1553. In 1606 Robert de Nobili founded the famous Madura Mission, to which also belonged De Britto (martyred in 1693) and Beschi, the great Tamil scholar. The Society of Jesus was suppressed in 1773 and not re-established till 1814, and during those years the missions languished. Persecution was also common, Tipū Sultān, for example, forcibly circumcising 30,000 of the West Coast Christians and deporting them to Mysore. At the present time contributions are received from all parts of Europe for the support of the Catholic missions, and they are controlled directly by the Pope through missionary bishops delegated by him.

Of Protestant missions the first was the Danish Mission at Tranquebar, which was established by Ziegenbalg in 1705. Swartz and Rhenius both belonged to this. It was much helped in its early days by the English Societies for the Promotion of Christian Knowledge and for the Propagation of the Gospel. The former sent out its first missionary in 1728. The London Missionary Society followed in 1804, and the Church Missionary Society ten years later. The Wesleyan Missionary Society began operations in 1818, and the American Madura Mission and the Basel Evangelical Mission in 1834. The latter has several branches on the West Coast, at which its adherents are occupied in the industries of printing, weaving, and tile-making under lay helpers. Later missions are the Baptist

Telugu, the Free Church of Scotland, the Leipzig and the American Evangelical Lutheran Missions, the Arcot Mission of the Reformed Church in America, and the Canadian Baptist Mission.

Occupations. The most noticeable point about the census statistics of the occupations of the people is the rural simplicity of the callings by which the large majority of them subsist, and the rarity of industrial occupations other than weaving. No less than 69 per cent. of the population live by the land. Of these, more than 95 per cent. are cultivators, tilling land which they either own or rent from others. Of these cultivators, 72 per cent. farm land which is their own property, or, in other words, are peasant proprietors. Next to agriculture, but after a very long interval, the commonest occupations are those connected with the preparation and sale of food and drink, which support 7 per cent. of the population, and those relating to textile fabrics and dress, which include all the weavers and employ 4 per cent. of the people. The various Districts differ little among themselves in the occupations which their inhabitants follow. The three Agency tracts and South Arcot are the most essentially agricultural areas; but, excluding the exceptional cases of Madras City and the Nīlgiris, the percentage of the population which lives by the land is fairly uniform, ranging from 62 to 75. Even in those Districts where this percentage is low, it is kept down merely by the unusual number of those who subsist by such callings as weaving, toddy-drawing, fishing, and so on, and not by the occupation of any considerable proportion of the people in employment which is strictly speaking industrial. In the larger towns agriculture is naturally not the main occupation. The provision and sale of food, drink, and dress take the lead; and next come money-lending, general trade, and callings connected with the transport and storage of merchandise. Even in towns, however, industrial occupations proper fail to employ any large percentage of the people.

Social characteristics. Food. Musalmāns and the lower classes of Hindus eat meat, except that the former will not touch pork and that only the lowest castes of the latter will eat beef. The upper classes of Hindus are strict vegetarians, avoiding even fish and eggs. Alcohol is forbidden to Muhammadans and the higher castes of Hindus. Rice is the staple food of the richer classes, and *rāgi*, *cambu*, and *cholam* the usual diet of the others. Pulses of various kinds are combined with all of these, and flavouring is obtained by the addition of sundry vegetables and a number of (often pungent) condiments. Nearly all classes chew betel.

Dress.

The dress of the people varies with their religion and caste, and moreover differs in different localities. Speaking very generally, that of the Hindus consists of a waist-cloth and a turban. Well-to-do persons add a cloth over the shoulders. The educated classes have taken to coats, and sometimes trousers and even boots, but never use a hat in place of a turban. Musalmāns wear trousers and jackets, and a turban wound round a skull-cap or fez. Hindu women usually dress in one very long and broad piece of cotton or silk which, after being wound round the waist, is passed over one shoulder and tucked in behind. Under this is often a tight-fitting jacket with short sleeves. Musalmān women wear a petticoat and a loose jacket. Women never wear any head-dress, or anything on their feet.

Houses.

Houses vary in degree from the one-roomed, mud-walled, thatched-roof hut of the labouring classes to the elaborate dwelling of the rich money-lender or landowner. The ordinary house contains a central court, surrounded by various rooms and opening by one door into the street. On the street side is usually a veranda, which is not considered to be part of the house and so can be used by strangers who would pollute the dwelling if they penetrated farther. In the Deccan there is usually no court and no outer veranda, and the roofs are flat. The members of one family, even if married, frequently live together and hold all their property in common. The present tendency, however, is for these joint families to break up and live separately.

Disposal of the dead.

Musalmāns always bury their dead, and the same practice is usually followed by the lower castes of Hindus. The upper castes usually burn them, but high priests and other saintly persons are buried. In many communities curious exceptions are practised—lepers and pregnant women, for example, being buried.

Amusements.

Excepting English importations, games and amusements are few. Cock- and quail-fighting (though discouraged by the authorities) are popular in places, and cards, chess, and games of the 'fox and geese' type are common. Strolling players, jugglers, and acrobats tour periodically through the country. A few castes organize beats for large game on general holidays.

Festivals.

The religious festivals of the South are legion. Perhaps the most important of those which are not merely local or connected with some special temple are the Ayudha Pūjā ('worship of implements') in October, when every one does reverence to

the tools and implements of his profession—the writer to his pen, the mason to his trowel, and so forth; the Dipāvali (literally, 'row of lights') in October or November; and the Pongal ('boiling') in January. At this last the first rice of the new crop is boiled in new pots. The cattle share in the festival, being allowed a day's holiday and having their horns painted with divers colours.

Names.

The Madras Hindu of the better classes has usually three names, e.g. Madura Srīnivāsa Ayyangār, or Kota Rāmalingam Nāyudu. The first of these is either the name of the village or town to which he belongs, as Madura; a house-name (as Kota) adopted for a variety of reasons; or the name of the man's father. The second name is that by which he is usually addressed, and is often that of one of the gods; while the third is the title of the caste. Among Brāhmans, this third name further denotes the religious sect of its possessor, and sometimes even his nationality. Thus an 'Ayyangār' is a Vaishnavite, an 'Ayyar' a Saivite, and a 'Rao' a Marāthā Brāhman. The labouring classes and women have usually only one name.

Agriculture. General conditions: climate.

The agriculture[1] of the Presidency naturally depends largely upon its climate, soils, and seasons. Lying, except the Northern Circārs, between 8° and 16° N., the climate is hot and equable; the whole period from March to October is characterized by high temperature, coupled, in the central areas, with great atmospherical dryness. As has been mentioned above, the west coast enjoys a heavy and unfailing fall of 100 inches and upwards; the east coast shares, through the Bay current, in the south-west monsoon as regards the northern Districts, and obtains the full benefit of the north-east monsoon; the central and southern table-land, comprising ten of the largest Districts, gets, with exceptions, only a moderate and capricious rainfall, varying locally from 38 inches in North Arcot to 23 inches and less in Bellary. Much of this last area is known as the famine zone; over large tracts the amount received in 1876 was from 2·7 to 10 inches; during the decade 1891–1900 the Deccan Districts received an annual average of only 23·2

[1] In the remarks under this head, only the Districts east of the Western Ghāts will be included unless the west coast is expressly mentioned. The two west coast Districts (Malabar and South Kanara) are wholly different from the others. Statistics relate solely to *ryotwāri* and *inām* land; the *zamīndāris* (population, 7,554,355, excluding those in the Agency tracts) are wholly omitted. For the meaning of the terms *ryotwāri*, *inām*, and *zamīndāri* see under 'Land Revenue' (pp. 94, 100–2).

inches. Moreover, where the rainfall is least abundant it is most capricious in both amount and distribution; there are frequently excessive and destructive intervals or premature cessations at critical seasons, while much of the rain is too light to be of use under a tropical sun or to put any water into the irrigation sources. The atmosphere in the Deccan and central Districts is extremely dry for most of the year, and dew is general only in the cold season.

Soils. To hostility of climate must be added considerable inferiority of soil. The deltas and river margins, indeed, are of rich alluvial soil robbed from the hills and uplands of the undulating country, and over large tracts is found the retentive black cotton soil; but, from their geological origin and position, the soils over vast areas are shallow, gravelly, and sandy, overlying a sterile and even impenetrable subsoil of gravel and rock. Much even of the black soil is inferior, being saline and shallow. In 17·5 million acres of 'wet' and 'dry' land in twelve non-deltaic Districts, the black clays, loams, and sands aggregate 16, 17·4, and 4 per cent. respectively, and the red loams and sands 22·5 and 40·1 per cent.; in those Districts alluvial soils and red clays are of inappreciable extent. Soils are described as 'dry,' i.e. non-irrigated; 'wet,' i.e. irrigated otherwise than from private wells; and 'garden,' i.e. 'dry' land watered from private wells on which 'dry' and not 'wet' assessment is charged. Of the occupied *ryotwāri* area 81 per cent. is 'dry,' including 'gardens,' and 19 per cent. 'wet.' 'Dry' soils, even of the black class, are deficient, generally speaking, in organic matter and in constituents of vital importance. Phosphoric acid is low in all soils, so far as tested; nitrogen is wanting and nitrifying power small; alumina is lacking in the vast areas of sandy soils; potash and iron are usually sufficient, but lime is low in the red soils; humus is in striking defect everywhere. 'Wet' soils are much better; they are chiefly formed of the mixed alluvium washed from the hills and uplands, and are fairly manured. 'Garden' land is naturally good by its position in fertile bottoms, and is laboriously improved by tillage and manure.

Seasons. The agricultural year nearly coincides with the 'Fasli,' that is, from 1st July to 30th June. It has four periods: that of the south-west monsoon (1st June to 30th September), of the north-east monsoon (October to December), of the dry season (January to March), and of the hot season (April and May). In the first, the sowings on the lighter classes

of unirrigated land take place, each successive shower adding to the area; the crops sown vary in the several Districts, where each crop has, generally speaking, its appropriate date; the heavier soils are not usually sown till late in this period or early in the next, the southern Districts being usually later than the others. For light soils a succession of showers is needed, but they may be slight; for heavy black soils light showers alone are useless, but when once the land has been thoroughly soaked its retentive power enables it to mature good crops with little subsequent rain. The great deltas and other tracts irrigated by rivers fed by the south-west monsoon are cultivated from June onwards, the precise season and class of rice varying according to local custom. The north-east monsoon period is important for the other irrigated lands, since the rain-fed tanks draw their best supplies from the heavy rains of October and November, those from the south-west monsoon being uncertain. Crops of an inferior or precarious character are also largely sown in most Districts towards the end of this period. In the third period there are few sowings, but the scanty rains are useful for pasture and for refreshing standing crops. The rains in the fourth period or hot season are of great agricultural importance, for with them vast areas are ploughed ready for sowing; in some Districts large areas of gingelly (*Sesamum*) and other crops needing little rain are sown, pasture revives, and occasionally a second crop of lint on standing cotton plants is brought on.

Agricultural practice; tillage.

Agricultural practice differs widely according to conditions. Tillage is generally superficial; in the light thin soils of the dry Districts it is so from want of rain for preparatory work, from the necessity for rapid and extensive sowings with the precarious showers of the south-west monsoon, and from the nature of the cattle and implements. The ordinary tillage of the black soils is also superficial, but every few years these should be deeply broken up: the prophylactic value of deep tillage against drought is then frequently visible in the Deccan Districts. For superior crops, such as sugar-cane, tobacco, and 'garden' crops generally, the tillage is thorough and laborious, and a fine seed-bed is obtained by numerous cross-ploughings. On irrigated lands swamp-cultivation is most in vogue, a shallow surface soil being laboriously stirred with water into fine mud, while the subsoil is left as a soapy impervious pan.

Implements.

Implements are few and simple. In the Tamil Districts the light plough—a single-tined grubber or cultivator—is

almost the sole cattle-power implement; in the Telugu Districts, chiefly of the Deccan, bullock-hoes, scrapers, and seed-drills are also in use, and the heavy black soils are broken up with huge and cumbrous ploughs drawn by five or six yoke of oxen; thousands of costly iron ploughs have now replaced these last-named implements; in the south the crow-bar is used for breaking up black soils. Simple water-lifts, worked by cattle or human power, are universal, and the iron sugar-cane mill is replacing the wooden one. Carts are fairly numerous (505,000), and have greatly increased during the last few years: they average 22 per 1,000 acres cultivated. Except simple manual tools, other implements hardly exist.

Stock. Live-stock have increased with the spread of cultivation; but they are generally of poor quality, undersized, ill fed, and ill cared for, though excellent breeds and good cattle are available upon demand, as for heavy draught in the strong soils, for well-work, and for road haulage. General practice is defective in both breeding and feeding. The universal system of common pasturing, in which cattle of all ages wander in promiscuous herds over the open arable lands and village wastes, ensures immature, mongrel breeding and the spread of disease; and since, in general, there is no system of fodder-growing, only the scanty wild pasture of the unoccupied lands, and the grazing and stubble on the arable lands and leaves from trees, are available for ordinary cattle. The straw of the crops, occasional fodder crops and rough pastures, cotton seed, some oil-cake, crop-thinnings, and weedings are generally kept for the working and best cattle. Forests, when available, supply grazing, but vast areas are far distant from even the semblance of a forest. Horned cattle, moreover, are seldom slaughtered, so that large numbers of worn-out beasts return nothing but scanty manure for the food consumed. Hence the mere number of cattle is no gauge of their power or productive value. District figures vary greatly per 100 acres in numbers, age, and sex, according to soil, irrigation, &c., or according as cattle are bred or imported; but for the Presidency (including the West Coast) the latest figures are, though understated:—15·05 million cattle and 13·3 million sheep and goats, compared with 14·5 and 12 millions in 1890, being an increase of 4 and 11 per cent. respectively: the numbers per 100 acres cropped are 62 cattle and 55 sheep and goats, compared with 62 and 51 respectively. The area tilled per pair of plough cattle averages 9 acres, but varies greatly according

to soil, class ('wet' or 'dry') of cultivation, existence of labour-saving implements, &c. Some black-soil areas, such as Kurnool, return 30 to 40 acres per pair, while lighter soils show from 10 to 20 acres: in irrigated tracts the area averages about 6 acres. The chief breeds of cattle are the Nellore (from North Nellore and Guntūr), which are heavy, big animals weighing up to 1,500 lb., the best milkers in the Presidency, and prolific breeders, calving almost annually; the Mysore breeds of different names and types, such as Mahādeswarabetta, Alambādi, Mecheri, Bargūr, and Tiruchengodu in Coimbatore and Salem Districts; the Kāngayam, Pulikulam, and Kilkād in Coimbatore and Madura; the Punganūru of North Arcot; and the Dupād and Erramala breeds of Kurnool. These are all regular breeds of distinct types raised by large ryots or cattle-breeders, of good quality and commanding fair to high prices. The yield of milk may amount, though rarely, to 8 quarts (20 lb.) in the best milking breeds, while the trotting cattle of the Alambādi, Kāngayam, and other compact breeds will trot up to 7 miles per hour.

Buffaloes (2½ millions) are of various breeds, those called Kampli (Bellary) and those of Vizagapatam and the Nīlgiris being the best. The cows are valued for milk; the males are used for heavy ploughing (chiefly in the 'wet' lands) and for slow heavy draught, but, especially in the south, are little valued as compared with females, and are sacrificed at shrines, usually as calves, in immense numbers.

Horses and ponies are of little value. Sheep are numerous but not generally of good quality, though several breeds, such as the big Nellore sheep standing 3 feet high and weighing 80 to 100 lb. each, the small Coimbatore woolly Kurumba breed, and the Mysore breed in parts of the Deccan, are fair. The wool is usually poor in quality and yield, seldom exceeding 1 to 2 lb. per fleece; the mutton, averaging 20 to 25 lb. clean weight, is generally inferior. Goats, of two main breeds, are highly useful, being hardy and able to pick up a living anywhere in most seasons. Together with sheep, they are largely used as manuring agents, wandering over the village by day and penned at night on the fields of those who have hired their services. They are very prolific, and will produce from two to six kids in the year. The value of a sheep or a goat may vary from Rs. 2 to Rs. 10.

Pigs and poultry are numerous, but their maintenance is, under the customs obtaining, hardly an item of agricultural practice. Bee-keeping is unknown.

Dairying. Dairying is very backward, though *cholam* stalk (*Sorghum vulgare*) is one of the best fodders in the world for milch cattle. The yield of milk from cattle is small, though the quality is not inferior; it is not above 2 to 4 lb. from the common mixed breeds, and from 8 to 20 lb. (rare) in the good class. Buffalo milk (1½ million cows) is fair in quantity, and the milk is far richer than that of English cows in butter-fats and solids. Good milk is also largely obtained from sheep and goats. But as the holdings in general are very minute and devoted to arable farming, the milk yield small, and the feeding inadequate, while co-operation in such matters is unknown, the dairying of western countries is not practised. *Ghī* (clarified butter) is, however, made largely, while curds and buttermilk are staple items of production.

The produce of stock in manure, milk, wool and hair, hides and skins, meat and bones, apart from that of their labour in the farms and on the roads, forms an immense addition to the income of the agriculturists and breeders.

Cattle fairs. There are numerous annual cattle fairs, especially in the southern part of the Presidency, and many of the weekly markets are almost equally important: the annual fair at Madura in April will have 30,000 head displayed for sale, at prices from Rs. 100 to Rs. 400 per pair. These fairs and markets enable ryots, cartmen, and the richer classes to supply themselves with good cattle, the ordinary methods sufficing for the common and cheap breeds; the Deccan is generally supplied by drovers from Nellore and Guntūr, who bring young stock for sale on a three-year instalment system, which is well conducted on both sides, though somewhat expensive.

Manures. Practice regarding manures is defective, partly from poverty. Dung from the stalls or elsewhere, the droppings of cattle, sheep, and goats penned on or wandering over the fields, town and village sweepings, ashes, leaves and twigs, indigo refuse, &c., are chiefly in use. Cattle manure is badly and wastefully prepared; and besides what is burnt and used in plastering walls and floors, much is lost by pasturing cattle on the wastes and, for several months together, in the forests. Bones are not used directly; saltpetre is occasionally used indirectly in the application of old village-site soil, but not otherwise; the very valuable tank silt, available in millions of tons, is seldom applied, while the one universal, natural, and almost sufficient manure, human excreta, is abhorred, though availed of indirectly in the fields immediately around the village site and, in some cases, by useful blindness in the collection of

village and house sweepings. Poudrette is nowhere made; artificial manures, fish, &c., are practically unknown; and green manuring, so necessary for dry, arid soils, is little practised except in the use of masses of leaves on 'wet' lands. In some Districts all forms of village and house manure are frequently gathered or dropped into pits and used at intervals; and in the hedged areas of Coimbatore and Salem, cattle and sheep are penned continuously on the gardens; the refuse of slaughter-houses and tanneries is used, and certain oil-cakes. But, speaking generally, practice is primitive, the quality of the manure is poor from poor feeding, while the much too scant quantity is chiefly given to the irrigated and garden lands, so that most 'dry' lands get little or nothing. For manurial and many other necessities the need for hedges, wherever practicable, and for abundance of trees, especially private, is very great.

Rotations are hardly practised as a system, though experience adopts advisable and avoids improper sequences in special cases. But the universal method of mixed crops, especially of legumes with cereals, largely takes their place, permitting continuous cereal cropping by the power of the leguminous root-nodules to acquire free nitrogen: probably the effect would be better if pulses were not, as often, pulled up by the roots. One-fifth of the land, usually the poorer portion, is in bare fallow or pasture; the bare fallows fall short of their restorative value since the lands are often left untilled: relinquishments and Government sales and purchases are largely due to this need for fallowing. Rotations.

Diseases and pests among stock and crops are sadly prevalent and cause great losses. Cattle diseases, their prevention and cure, are being studied, and official veterinary work is slowly developing; but the general management of stock is so defective, the customs regarding the sick and dead so provocative of the spread of disease, the field so vast, and passivity and ignorance of good veterinary treatment so great, that enormous effort and a long period are necessary to make a satisfactory impression. Little is known of the various pests, insect and fungoid, which affect crops; the Government Botanist has begun work on them, but a staff of assistants is necessary in the total absence of private and amateur help. Diseases and pests.

To sum up: the climate and solar heat are tropical, and—excluding favoured tracts such as the West Coast, the great deltas, &c.—the rainfall and water-supply are uncertain, variable, and often scanty, atmospheric humidity is frequently Summary.

slight, and natural soils over vast areas are moderate to very inferior. Hence on immense tracts, man can live and increase only by the ceaseless and intelligent application of the whole art and science of agriculture; and when, from any cause, such application is defective, or when natural conditions fall seriously below normal, there must result danger and possibly disaster. Yet, in practice, tillage is defective; stock are productively inadequate and largely ill cared for; cattle-power implements, though ingenious, are primitive, and in the Tamil Districts almost absent; manures are low in quality and gravely insufficient in quantity; capital is scanty and credit too frequently mortgaged; the ryot is too isolated a unit, and, though hereditary skill is considerable, there is lacking that basis of wider knowledge which alone renders possible an intelligent adaptation or development of practice to meet new conditions which have swiftly supervened upon a rapid increase of population over unimproved soils and the opening up of trade.

Irrigation. The chief general remedy, though very partial and insufficient and most difficult to apply just where it is most needed, is irrigation. On the West Coast the abundant rainfall renders artificial irrigation, except of the simplest sort, unnecessary. East of the Ghāts the numerous irrigation works referred to below, which include 6,000 dams thrown across rivers (and the many channels fed by them), 33,000 tanks or reservoirs, and 7,000 channels tapping the surface or underground flow of the rivers, irrigate 4·9 million acres as well as above a million acres of second crop. In addition, an increasing number of permanent wells (667,000 in 1900–1) water above a million acres, besides a second crop on 43 per cent. of that area. On the whole, nearly 29 per cent. of the crops grown east of the Ghāts are irrigated in an ordinary year.

On irrigated lands practice differs according to the water-supply. When flow-water is abundant, nothing but rice is grown, chiefly by swamp cultivation. The swamp method is necessary on existing rice flats irrigated solely by surface flow, where, in view of the rights of the adjacent holders to the water, it cannot be allowed to sink into the ground and be drained away at lower levels. When lifted, as from wells, water is used economically; there is no swamping, but the soil and subsoil are kept healthy and porous, the water largely draining back to the well: practice can hardly be improved, and crops are heavy and almost continuous. Irrigated lands are well manured, either naturally, by the silt from river water, or artificially, swamp cultivation requiring *inter alia* the exten-

sive use of leaf-manure, the supply of which is a question of much practical importance. Irrigation on all the lighter soils is a panacea as regards crop-growth when manure is supplied, but on strong retentive soils may be mischievous if applied in the usual swamping fashion, since they are easily water-logged. Hence the ryot on such soils prefers to grow crops by rainfall, with occasional floodings only in case of drought, so that the protection of these areas by state irrigation is difficult, owing to the conflict of interests between agriculture and irrigation revenue.

Of the gross area (29·5 million acres[1]) of crops on *ryotwāri* and *inām* lands, 80 per cent. is occupied by food-crops. Rice occupies 26·4 per cent. of the gross area, and yields from 7 to 10 cwt. of clean rice per acre, or much more heavily than any other cereal; the maximum rises to over 30 cwt. on the best 'wet' or 'garden' land. The crop is usually, though not always, irrigated, and under swamp cultivation requires an almost continuous supply, equal, in five months, to 8,000 to 10,000 cubic yards per acre. Manures are river silt (from the irrigation water), leaves, village sweepings, dung, &c. *Cholam* (*Sorghum vulgare*) occupies 13·8 per cent. of the gross area, is usually unirrigated, but yields heavily in grain ($3\frac{1}{2}$ to $6\frac{1}{4}$ cwt. per acre) and straw if irrigated eight or ten times in a period of about 100 days. *Cambu* (*Pennisetum typhoideum*) covers nearly 10 per cent. of the area, yields $3\frac{1}{4}$ to 5 cwt. per acre, and is seldom irrigated. *Rāgi* (*Eleusine coracana*), which occupies 5·4 per cent. of the total area and gives from $4\frac{1}{4}$ to 5 cwt. per acre, is grown both as a 'dry' crop and under intermittent irrigation. For all these crops any manure available is used. Crops.

About 15 per cent. of the cultivated area produces industrial crops. Cotton (1,740,000 acres) is grown as an annual chiefly on black soil, but also, occasionally, as a triennial on red soils; it is never irrigated. The average yield in normal years varies according to soil and District from 30 to 90 lb. of lint, but this estimate is alleged by the trade to be too low. Seeds are three times the weight of lint; oil is not manufactured from them, but they are used unpressed as cattle food. Oilseeds taken together occupy a larger area (2,082,000 acres) than cotton; gingelly (*Sesamum indicum*), castor (*Ricinus communis*), and ground-nuts (*Arachis hypogaea*) are the chief; the last named is largely grown in South Arcot and exported from Pondicherry.

[1] The figures of crops include those of the West Coast. Details appear in Table IV at the end of this article.

Indigo (242,000 acres) has shrunk from nearly 2 per cent. to below 1 per cent. of the total cultivated area. Sugar-cane keeps its usual low area (50,000 acres), having increased about 50 per cent. in forty years; the cost and delay in returns check extended cultivation, since profits are good upon an average yield of 45 cwt.; the crop gets thorough tillage, plenty of manure, and regular though not continuous irrigation for nine or ten months on well-drained soil. Sugar is also obtained in immense quantities from the palms. Tobacco is grown on the greatly increased area of 134,000 acres, largely as a garden crop with well-irrigation, ashes and brackish water being considered good for the crop: 1,000 lb. of dry leaf per acre is a low average. Production and manufacture have been greatly improved of late years by European factories and the introduction of foreign seed, but immense expansion is possible for the foreign market. Various condiments and spices are grown on 413,000 acres, having increased by 34 per cent. since 1880–90. Tea is grown on only 12,000 acres by individual planters; coffee on 51,000 acres chiefly but not entirely by Europeans. Cinchona (3,300 acres) has largely decreased, but rubber of various species is being planted on hill areas. Orchards (780,000 acres) comprise only areas classed as such, including the coco-nut plantations of the West Coast, but not the vast unrecorded masses of palms and other fruit trees scattered over and on the margins of fields and in backyards. Fodder crops (228,000 acres), though occasionally grown elsewhere, e.g. in Tinnevelly, are chiefly recorded for Kistna District, where, though much understated, the statistics relate to the areas sown with *san* (*Crotolaria juncea*) grown for fodder, without revenue charge, after the rice crop on irrigated land. Vegetables of many kinds and character are grown everywhere, whether in irrigated gardens, or mixed with ordinary crops, or otherwise; the unrecorded cultivation in the plot usually attached to every cottage produces immense quantities of this class of crop.

In normal years 29 million acres are recorded as cultivated on an area of about 25 million acres of *ryotwāri* and *inām* land; more than 3 million acres thus produce a second crop, of which half is on 'dry' land, including above half a million acres of second crop from well-irrigation, and half on 'wet' land. The West Coast area, however, is greatly understated, as shown by the settlement operations now proceeding; South Kanara would starve on the figures recorded, whereas it exports rice largely. Second and third crops (grown with

well-irrigation) and fodder crops are also imperfectly reported, and the area of pulses grown in mixed crops is understated. Table IV at the end of this article shows cultivation for twenty years, but the frequent bad seasons of the second decade have kept down the area. Comparing 1904 with 1880, the area cultivated has extended by 26 per cent. and that of crops grown by 35 per cent.; population on the area by 29 per cent.; first-class river irrigation and that from wells has also increased, together with other intensive methods such as *ottadam* or combined short and long rice crops in Tanjore and South Arcot, while the West Coast area, though it has increased, has never been so reported. Hence it is clear that, after deducting half a million acres for survey corrections, production has fully kept pace with population, notwithstanding the necessary resort to poor and unimproved soils.

The out-turns of food-grains quoted on p. 45 are those estimated with some care in 1898, but are only approximations; with soils, climates, practice, capital, and irrigational facilities so different and fluctuating, and with the agencies available, nothing is so difficult as correct estimation even of normal, still more of average, out-turns. Applying the various rates to the respective areas, the gross average result, exclusive of famine years, was 7·47 million tons of food-grains, including pulses, from 21·57 million acres of crop grown on about 19·3 million acres of *ryotwāri* and *inām* lands, with a population of 28 millions; from this a deduction for husking of one-third by weight is due on 4·35 million tons of rice; on the other hand, the pulses are included with cereals, though, weight for weight, far more nutritious. The average gross out-turn of food-grains was 6·93 cwt. (776 lb.) per acre of crop; if the needful husking deduction is made it would be 5·58 cwt. (625 lb.); the corresponding out-turn per acre cultivated would be 867 lb. and 698 lb. respectively. Considering that the good yield of rice and garden cereals is included in this average, the small out-turn on the poorer soils may be inferred; even these figures are little higher than the yield of continuously unmanured wheat at Rothamstead, and most 'dry' crops obviously yield only the natural minimum. Recent reports tend, however, to show, on some areas, larger average 'dry' yields than are here stated, while the average area of 21·57 million acres of food-crops is considerably below that (22·3 millions at least) of a normal year.

Agricultural population.

Of the total population, 71 per cent. are engaged in agriculture, inclusive of cattle-breeders, labourers and others; 48 per

cent. have a direct interest in the land either as owners or tenants. In *ryotwāri* areas there are 3,300,000 holdings with 5,814,000 shareholders, 67·7 per cent. being held by single owners. Of these holdings 12·6 per cent. pay less than R. 1 as land revenue, 55 per cent. between R. 1 and Rs. 10, and 22 per cent. between Rs. 10 and Rs. 30. Excluding the West Coast, the smallest class averages three-fourths of an acre assessed at 11 annas, the next class 4 acres paying Rs. 4-8-0, and the third class about 10 acres paying Rs. 16-4-0. These nine-tenths hold 61 per cent. of the total area, including, however, only 31 per cent. of the irrigated area. In addition, about 4½ million acres of 'minor *inām*' land are held, mostly by the same ryots, and about 750,000 acres, not in holdings, are cultivated annually with catch-crops. These figures show the minuteness of *ryotwāri* holdings, and those in *zamīndāris* and 'whole *inām*' villages are similar; many of those holding land eke out their living by wages or by renting land. Moreover, the best land is under occupation, and that remaining is usually the unimproved, arid land, which requires great skill, labour, and some capital to make permanently productive: this is well seen in Anantapur. About one-fifth of the holdings are annually left fallow, partly as grazing-ground (especially in Godāvari and Kistna Districts) and partly to recuperate. In the *ryotwāri* areas east of the Ghāts, about one acre is under cultivation per head of the population, taken as 22·35 millions exclusive of Madras City; but while the rich Tanjore delta, chiefly irrigated, maintains its 2¼ millions on half an acre apiece, the large dry District of Bellary shows a cropped area of above 2 acres apiece for less than a million people, or four times the Tanjore individual area.

Indebtedness.

These figures suggest and explain many difficulties attending agricultural practice and progress. Madras agriculture, with its irreversible minuteness of holding, can be permanently successful only in so far as it approaches garden cultivation or the spade-husbandry of allotments. The ideal for Madras is the Horatian *modus agri non ita magnus, Hortus ubi et tecto vicinus iugis aquae fons, Et paullum silvae* . . . .

Among such small folk the necessity for frequent and cheap borrowing is obvious; but, as in other countries of small holdings, wherever the organization of credit is absent, the isolated position of the individual ryot in such matters renders credit dear and indebtedness serious. The amount of debt, its causes, objects, rates of interest, and its burden on the land have never been completely studied; but, from calculations

made, it is probable that indebtedness—including urban—at any one time is at least 45 crores at 15 per cent. interest, and that the people annually pay as charges (interest, stamps, fees, &c., but exclusive of the cost of litigation) a sum which exceeds 6 per cent. interest on that debt by an amount equal to the whole land revenue. From a recent examination of 83,000 registered documents it appears that four-fifths of the registered debt outside of Madras City is owed to ryot-creditors, and that professional money-lenders are in a small minority; floating debt in cash or grain, at least equal in amount to all mortgages, is probably owed in a still greater degree by ryots to ryots. Of mortgages rather less than one-third are with possession. Interest on mortgages varies between 6 and 36 per cent., but three-fourths pay between 9 and 18 per cent.; non-mortgage debt bears somewhat higher interest. Probably almost all ryots borrow at one time or other; but a large number are, as their class in India always has been, continuously in debt, unable to begin cultivation or to subsist during the growth of the crops except by petty borrowing, and returning at harvest time all but a moderate surplus to their creditors; many more are frequently in difficulties. On the other hand, large numbers are perfectly solvent, while the immense relative proportion of ryot-creditors scattered all over the country shows that very many have accumulated surplus capital. Indebtedness is no new thing. Its universality and character were more striking in the first half of the nineteenth century, and the creditor then was usually a shopkeeper or merchant to whom the crops were hypothecated before they were reaped; the change to the ryot-creditor is noteworthy. But even at the present day the amount of debt relative to land and crop values is large, its burden heavy, its interest high, and the result in improvements or profits a minimum[1].

Progress.

To remedy, to some extent, the want of capital for improvements and stock, state funds have been advanced since 1889 under the Land Improvement and Agriculturists' Loans Acts of 1884. Under the former the advances have been 29 lakhs, with which about 20,000 wells have been constructed, and 26 lakhs, with which an even larger number have been repaired; the area benefited is about 138,000 acres. In addition, 20 lakhs has been granted for other miscellaneous improvements, such as reclamation. Under the latter Act 22 lakhs has been advanced, with which 40,000 cattle have been bought, many

[1] See Mr. Srīnivāsarāghava Ayyangār's *Memorandum* of 1893, and the *Report on Agricultural Banks* (1895), vol. i, pp. 229–42.

houses built, and other agricultural improvements effected. The development of the system is now under consideration. But the want of capital cannot be directly supplied by the state; and to remedy this want, and to remove or lessen the burden of indebtedness which has ever been a grave hindrance to agriculture, the establishment of agricultural banks in one or more forms is being sought. The village system of the Presidency, the co-operative habits of the ryots in irrigation and other communal matters, the presence of many retired officials and public-spirited men of various classes throughout the country, and the success of indigenous methods of co-operative credit, as exemplified in the *nidhis* or mutual loan funds with a membership—largely urban, however—of about 40,000, a paid-up capital of about 75 lakhs, deposits of about 25 lakhs, and loans outstanding of nearly 100 lakhs, give promise of gradual success with the aid, at first, of some Government supervision and small assistance.

The Agricultural department is now developing. Two experimental farms have been started, which have already been useful in exemplifying the seasonal difficulties of the Presidency; veterinary work on a larger footing has begun; the hands of the recently appointed Government Botanist are full, including an experimental inquiry into sugar-cane disease and into indigo; the work of the statistical branch has improved and is now being reorganized; and important recruitment is expected on the purely agricultural and chemical sides. The College of Agriculture, with its educational farm, has continued for years to train students in agricultural science, but, for various reasons, these have not yet been able to influence agriculture. A scheme has now been sanctioned which embraces the establishment of an Agricultural College and laboratory, equipped with experts in agriculture and allied sciences, at Coimbatore; the strengthening of the central organization dealing with these matters; and the establishment of a number of experimental farms at suitable centres. Agricultural associations are rapidly forming in the various Districts, which will be linked together through the Technical Institute at Madras.

Irrigation works.

Something has already been said regarding the considerable area of the eastern side of the Province which is under irrigation, and of the practices followed in the cultivation of 'wet' land.

The irrigation works administered by the Government may be divided into three main classes. In the first of these come

what are technically known as 'major works,' the outlay on which is usually met from Imperial funds. These include the great systems in the deltas of the Godāvari, Kistna, Penner, and Cauvery, and important undertakings such as the KURNOOL-CUDDAPAH CANAL and the PERIYĀR PROJECT. The delta systems depend upon great masonry anicuts or dams, which have been thrown across the rivers at the head of the deltas, and consist of a network of canals and channels to distribute the water so rendered available. The second class of irrigation works is financed from Provincial funds, and comprises such 'minor works' as are of sufficient importance to require separate accounts of their capital and revenue expenditure. It includes chiefly the systems dependent upon the dams across the lesser rivers and a few of the largest 'tanks' or artificial reservoirs. The third class includes the thousands of smaller channels and tanks throughout the Presidency, for which no capital accounts are kept. The larger of these are maintained in repair by the department of Public Works, and the smaller are in the charge of the Revenue officials. The clearance of smaller channels and similar petty repairs are generally carried out by the cultivators themselves, by what is called *kudi-marāmat* or customary labour. In some Districts a special irrigation cess at varying rates is voluntarily paid by ryots holding land supplied by some of the principal river channels, in lieu of the customary labour due by them; and the money so collected is spent by the Revenue officials in executing the petty repairs elsewhere performed by *kudi-marāmat*.

Financial results. The figures in Table V at the end of this article give in lakhs of rupees the financial results of these three classes of works in recent years. The expenditure includes working expenses and interest on capital outlay. It will be seen that the larger schemes have proved a profitable investment, paying a return of more than 4 per cent. on their capital, and that in the aggregate the revenue from the very many small works (96 lakhs) is most important.

Practically all of the thousands of lesser tanks in the Presidency were constructed before the British occupation. They are formed by throwing earthen banks across natural depressions, or the course of streams, in order to store rain-water. But except the system in the Cauvery delta, the basis of which was constructed by former native governments, all the larger works are a product of British rule.

Collection of the revenue. The sums due from the cultivators for the water they use are collected with the revenue payable upon their land. Except

in the case of the Kurnool-Cuddapah Canal, where the system differs, land to which water can be supplied is classed as 'wet,' and a consolidated assessment, which includes payment for the water, is levied upon it. If a cultivator uses water upon land classed as 'dry' he is charged 'water rate.' The share of the revenue which should be credited to the irrigation works is apportioned according to fixed rules.

Wells.

Besides the Government irrigation works there are the very numerous wells belonging to the cultivators, from which nearly a quarter of the whole irrigated area is watered. These are nearly always large permanent constructions, often with a masonry revetment. The average area irrigated by them is only 3 acres, which is much less than in Northern India; but one reason for this is that they are generally used for growing valuable crops which require much water, rather than for the occasional irrigation of the ordinary cereals. The expense of excavating them naturally differs greatly with the character of the soil. In the southern Districts they can often be made for Rs. 100 or Rs. 150, while in the rocky Deccan they cost three or four times this sum. In the Deccan the water is usually raised by a *mot*, a large leathern bag which is hauled up with a rope and pulley by two bullocks, while in the south the most popular water-lift is the *picottah*, consisting of an iron bucket attached to a long elevated lever, which is operated by the weight of two or three men walking up and down along it.

Fisheries.

The irrigation tanks usually contain coarse fish, the right of netting which is disposed of annually. The sea-fisheries along the coast employ thousands of persons, and the salting of the catches (see under Miscellaneous Revenue, p. 103) is a very considerable industry. The development of the fisheries of the Presidency is now under investigation by Government.

Rents.

In Madras assessments are not based on rentals and there is no record-of-rights, so that less is known of them than in some other Provinces. In the *zamīndāris*—with large exceptions, however—and *inām* villages, the rentals are the *paimāsh* (original settlement) rates, which are generally much higher than present *ryotwāri* assessments. They frequently vary according to the crop, betel being charged Rs. 32 an acre while rice pays much less; an extra charge is occasionally made on fruit trees in addition to the land rent. The highest fixed *zamīndāri* rental is believed to be Rs. 45 per acre of irrigated land, but higher rates have been mentioned for sugarcane in Godāvari District; from Rs. 20 to Rs. 40 per acre plus tree rent are contract rates for the *zamīndār's* own lands in

a Salem estate where the *paimāsh* rates do not exceed Rs. 20; in some estates the rental on irrigated lands is 50 per cent. of the gross produce—less village servants' dues—taken in kind. In the great Kālahasti estate about half the produce on all lands is said to be claimed by the *zamīndār*, and in the neighbouring estate of Kārvetnagar rates are mentioned of 1,600 lb. of rice plus Rs. 4. An Act passed in 1865 to govern the relations between *zamīndārs* and other landed proprietors and their tenants provides for the adjudication by the Courts of disputes regarding rates of rent when these are brought before them in accordance with the Act; but its provisions on this point are inexact, and for this and other reasons its amendment is under consideration.

Ryotwāri land is sub-rented on various systems—produce rents, in which from one-half to three-fourths or more of the gross produce is paid to the landholder; fixed amounts paid in kind; fixed money rents; and other less simple forms. On irrigated lands the sharing system is most common. From 1 to 1½ tons of rice worth Rs. 45 to Rs. 70 is not an uncommon rent on good double-crop land irrigated from the Cauvery in Salem, the maximum assessment compounded for the two crops being Rs. 14; in the Tanjore delta the *porakudi* (labouring tenant) defrays the whole cost of cultivation except perhaps manure (usually silt from the irrigation water), and gets from 18 to 33 per cent. of the grain and the whole of the straw. In five Salem villages irrigated by Cauvery channels, cash-rents, for terms of four or five years, run up to Rs. 200 per acre, usually for betel gardens, and the registered leases in 1895–1900 gave an average of from Rs. 63 to Rs. 100; in other Districts similar sub-rentals are reported. In Coimbatore recent registered rentals on 6,902 acres of irrigated land were at rates between Rs. 28 and Rs. 72 per acre, 3,865 acres paying Rs. 44 and upwards and averaging Rs. 50, while the Government assessment averaged about Rs. 9. A turmeric crop on irrigated land paid a rent of Rs. 75, the assessment being Rs. 6; grain-rents were from three-quarters to one ton of rice in land supplied by Amarāvati irrigation. Another inquiry into the leases on 6,968 acres showed that the rental of 'dry' lands averaged 3·4 times, of 'garden' land (irrigated from wells but including as much 'dry' as 'garden') 5·1 times, and of 'wet' lands 5 times the assessment; in many cases, chiefly 'garden,' the rental exceeded 8 times the assessment. In the same District one-seventh of the *ryotwāri* land in 592 villages was found to be sublet for one-half or a larger share of the produce. A general

rental everywhere on common 'dry' lands is twice the assessment, but this may rise to five or even ten times on all classes of land.

Wages in cash.

Table VI at the end of this article gives the average wages of labour for the Presidency. The skilled labour shown represents that of masons, carpenters, and blacksmiths; the unskilled is that of ordinary labourers, chiefly rural. The table shows a slight increase from the period ending 1880, which included the great famine and high prices of 1876–8; wages then rose, and the subsequent scarcity of labour and the high prices of the last decade have kept them up.

For unskilled rural labour the daily rate is not an accurate guide to the monthly or annual rate, since employment is not constant. When agreements, which are numerous, are entered into, the annual rate for adult males may range from Rs. 30 to Rs. 60, wages, when low, being increased by perquisites and special allowances in clothes, food, &c. Rates differ considerably according to locality, ruling higher in Districts with a large urban population than in those which are mainly rural. They are, for example, above the normal in Coimbatore, which has a vigorous people with 70,000 irrigation wells (which require much labour) and considerable leather, cotton-pressing, and other trades; in the deltaic tracts; in Bellary, owing probably to the cantonment and the cotton trade; and in South Kanara, on account of its isolation, its wealth, and the coffee, tile, and weaving industries of Mangalore. Wages are also higher on the coffee and tea estates on the hills than in the low country, the labourer expecting sufficient remuneration to compensate him for his absence from home and to enable him to return with savings. Wages usually rise smartly in busy seasons, such as harvest. The influence of mines and factories has been local and slight, since these are but few; but in combination with the opening up of trade, with large state expenditure on roads, buildings, and irrigation works, with railways both in their building and working, with greatly increased private expenditure on skilled labour, with easy emigration and so forth, cash wages show a rise, notwithstanding a prolific labouring population. Domestic service, especially in Indian families, obtains wages far higher than forty years ago.

Wages in kind.

Wages in kind form the chief rural system, and are either permanent or occasional. The former class comprise wages paid by the month, season, or year. The labourers either receive their meals—which are usually of the same nature as their employer's—with betel and tobacco, lodging, cloths, cash

presents, loans free of interest, a proportion of the gross produce, an allotment free of rent, &c.; or they get fixed monthly grain stipends with various extras, and in some cases one daily meal. The rates are almost as numerous as the engagements. Custom is the basis, but is varied by demand, class of work, efficiency, caste, season, proximity to towns and other sources of employment, facilities for emigration, &c. Competition affects custom, but is not always traceable, since the variation is mostly effected by means of extra payments. Grain stipends vary considerably, but for an adult male may be from 4 to 5 lb. of unhusked rice per diem and from $3\frac{1}{2}$ to 4 lb. of millet; they probably average about twice the daily grain ration; wages are lower if the labourer is of too low a caste to be allowed to do household service. The value with perquisites is sometimes over 2 annas per diem. These wages are largely added to by the earnings of other members of the family as occasional labourers. There is little indication of grain wages being replaced by money wages except in or near towns; labourers desire grain wages as they are thus independent of prices; employers often prefer cash wages, which do not rise equally with prices. Occasional wages are rather higher than permanent wages, and are largely paid in grain, especially at harvest time, when they frequently take the form of a share of the crop; at this season there is competition by employers and wages are high.

A distinct rise is taking place in wages, both grain and cash; employers, Indian and European, complain that labourers will not take the customary rates, and that contracts, especially after advances of money, are frequently broken. It is clear that the variety of employments now available, the spread of communications, and the increase in emigration already referred to are taking effect.

Village artisans usually hold lands on favourable terms of assessment (*inām*); they are also paid by grain contributions at harvest and in other ways.

Table VI at the end of this article gives prices for staple food-grains, salt, and piece-goods, inclusive of famine years. In the first decade shown in the table the famine was that of 1876–8; in the last decade there were two famines, partial in Madras but severe in neighbouring Provinces, besides several bad years: hence prices were high almost throughout. The entries in the last column show the fall on the return of a good season. Famine does not appear to raise grain prices permanently, except in the case of rice; for those of 1880–90, and even those of 1895–6, were much lower than the average Prices.

of the fifteen years previous to the famine of 1876–8, and those of 1903 are also cheaper. The development of communications and trade now prevents the violent local fluctuations in the price of food-grains so common in old times, has made them responsive to fluctuations in distant parts of India, and has so equalized prices throughout the Presidency that differences due to locality are seldom greater than 10 per cent. on either side of the mean at any given time.

Salt has risen in price, but the improvement in communications has lessened the rate of increase; salt in Bellary sold at Rs. 3–2–0 per maund (82$\frac{2}{7}$ lb.) when the state charge at the pans was Rs. 2–11–0, as compared with a sale price of Rs. 2–8–0 in 1850 when the state charge was R. 1.

Cart hire does not include the hire of bullocks; with bullocks it varies according to the District from 10 to 16 annas for 10 miles with a load of about half a ton, the charge including the pay of the driver.

Standard of living.

That the general standard of living is considerably higher than it was fifty years ago admits of no dispute. The advance has been slowest in such infertile areas as the Deccan, where a large proportion of the people are at the mercy of a light and uncertain rainfall; but statistics show that, even among this lowest class, those who have raised themselves from the position of day-labourers to tenants and from the position of tenants to owners of land is large. In the next higher grades of society finer clothing, more jewels, and better household utensils are to be seen, and rice has in some degree taken the place of the cheaper food-grains. Houses have increased more rapidly than the population, and the proportion of tiled to thatched dwellings has risen. There are no longer, as in the days of old, only the two classes of the very wealthy and the very poor, but a middle class in comfortable circumstances has arisen. Artisans, except the weavers, have shared in the general prosperity. In the upper ranks all these signs of well-being are even more marked. The professional classes have largely taken to European methods of living, and such statistics as those of the increase of deposits in the banks and of the imports of the precious metals are ample proofs of the advance which has taken place.

Forests. On the Western Ghāts.

The most important forests of the Presidency are in the south and west, on the Western Ghāts and the connected ranges of the Anaimalais and the Nīlgiri Hills, their distribution coinciding with the zone of excessive rainfall. The evergreen areas among them contain a number of timber species of

tropical growth, some of which, especially where difficulty of access has left them undisturbed, attain an extraordinary size. Among the more characteristic genera of this West Coast tree flora may be mentioned *Artocarpus*, *Chickrassia*, *Vateria*, *Hopea*, wild nutmeg, and *Lagerstroemia*, with cardamoms in the undergrowth in the upper valleys.

The next most important forests are those which cover the slopes and plateaux of the northern portion of the Eastern Ghāts, extending from the Kistna northwards through the western parts of Godāvari, Vizagapatam, and Ganjām, and on into Bengal and the Central Provinces. The rainfall in this area is heavier than anywhere else except the West Coast. These forests are chiefly noteworthy for the *sāl* (*Shorea robusta*) in Ganjām and the teak in the western uplands of Godāvari, and contain (among other species) *Pterocarpus*, the *Terminalias*, *Lagerstroemia parviflora*, and *Anogeissus acuminata*. On the Eastern Ghāts.

Situated between these two chief blocks of forest are two other less considerable wooded areas. The first of these lies in those portions of the Eastern Ghāts which run through Coimbatore, Salem, and North Arcot, and in the isolated ranges of the Shevaroys and the Javādi Hills. The rainfall here is much lighter and the forests contain no large timber, being chiefly remarkable for the best sandal-wood in the Presidency. The second of these two lesser areas consists of the Nallamalai range of the Eastern Ghāts in Kurnool and its continuation in Cuddapah District. The most representative species here are *Pterocarpus Marsupium*, *Anogeissus*, and, in the southern end, red sanders (*Pterocarpus santalinus*). In the centre of the Province.

Outside these four principal forest areas the Presidency is naturally well wooded wherever the trees have been left unmolested and the moisture is sufficient, though no individual trees attain large dimensions, and the luxuriance of the growth varies directly with the abundance of the rainfall. Thus, on the eastern slopes of the Mysore plateau and in the hills in the little Native State of Sandūr, there is a rich forest flora, of which the more characteristic species are *Hardwickia*, *Albizzia amara*, and *Anogeissus*; and even in the more closely cultivated Districts of the southern East Coast there is an abundant scrub flora, both persistent and invading, typical species of which are *Carissa Carandas*, *Maba buxifolia*, *Randia dumetorum*, *Albizzia amara*, and *Memecylon edule*. This growth, however, becomes gradually less hardy and luxuriant as the zone of lighter rainfall is reached, which lies farther inland, and in the cotton-soil plains of the Deccan dies away altogether, Other forest areas.

though certain species of timber trees, such as *Acacia arabica*, *Odina Wodier*, and tamarind, depend for their growth less upon climate than upon soil.

Plantations. The most important artificial forests are the teak plantations of NILAMBŪR in Malabar, which cover about 4,500 acres. They were started in 1842 by the Collector of the District, Mr. Conolly, have been continually extended until very recently, and now form a very valuable property. From 1856 onwards varieties of Australian acacia and eucalyptus were planted by Government on considerable areas on the Nīlgiri and Palni Hills. They have thoroughly established themselves, developing a rate of growth far in excess of that attained in their natural habitat; and the example of Government has been extensively followed by private individuals, with the result that the problem of the supply of fuel to the hill-stations on these ranges no longer causes anxiety. Elsewhere little has been planted except casuarina; but this has shown itself so well adapted to sand and to coast soil and climate, that native landowners have planted large areas of it in the neighbourhood of some of the more populous coast towns, and reap considerable profits from its sale as firewood.

History of conservancy. There can be little doubt that the greater part of the Presidency was originally a thickly wooded country. The old Sanskrit poems speak of the South as one sea of forest, and even the military histories of the eighteenth century relate how troops had to cut their way through the jungle in tracts which now support nothing more than a meagre, stunted growth of scrub. Such cases of rigid protection of forest growth by private proprietors as exist point in the same direction. Gradually, however, as population increased and cultivation extended, the forest receded, until, except on the hills, the only growth which survived near villages was usually small patches of poor scrub, exposed to continuous degradation from goat-graziers, gleaners of firewood, and searchers for leaf-manure. During the last twenty years systematic action has been taken to check the ruin to which the forests were thus exposed. The danger had long been understood. Early in the last century the needs of the naval dockyard at Bombay led to the establishment of a state royalty on teak and other timbers in Malabar and South Kanara. This developed into a state monopoly, abuses arose, and it was abolished by Sir Thomas Munro in 1822. Nothing more was done until 1847, when the Malabar and Coimbatore forests were put under the department of Public Works. The first Conservator of Forests was Dr. Cleghorn, appointed in 1856. Under him and his successor, Captain

(afterwards Colonel) Beddome, some attempt at protection, by the closure of small selected areas, was made, but the department was powerless for want of sufficient legal powers. In 1881 Dr. (afterwards Sir Dietrich) Brandis, Inspector-General of Forests to the Government of India, visited Madras, and as a result of his suggestions the existing Madras Forest Act (V of 1882) was passed and the department reorganized on its present footing.

Present policy.

The existing method of procedure is as follows: A forest which it is desired to protect is notified under the Act as 'reserved' land, and clearing or cultivation within it is prohibited. An elaborate inquiry is then made into all private and communal rights existing over the area, and, subject to such of these as are established, the tract is then notified as a 'reserved' forest, wilful damage to which is punishable. At the same time endeavours are made to avoid hardship to the people by a too rigorous extinction of their former privileges. The provision of fuel and fodder reserves is a recognized part of the policy of the department. Grazing is permitted on payment of small fees (which are remitted altogether in bad seasons), and thatching-grass and firewood are allowed to be freely taken on permits. Building materials are also granted free to the poorer classes whose houses suffer at any time from fires or floods. Small forest areas which are situated close to villages, and therefore constantly used by the people, are not usually 'reserved.' The forest tribes, as being most nearly affected by the restrictions, are allowed special privileges, including free grazing for their cattle, and are compensated for the restriction of their destructive shifting cultivation by obtaining regular work under the Forest department and by payment for the collection of minor produce, such as tanning barks and fruits, gums, wax, honey, dyes, cardamoms, rattans, &c., the receipts from which (especially from the tans) form a considerable item in the Forest budget. This shifting cultivation consists in felling and burning the forest growth, sowing grain among the ashes for a couple of seasons, and then abandoning the land until it is reclothed with coppice. If persisted in, the repeated firing kills the stumps of the trees, and the land then produces nothing but rank grass. The practice has been stopped in the Reserves, but it still survives in the three Agencies, on the West Coast, and in other smaller areas elsewhere.

A forest having been 'reserved,' the department sets itself to protect it from fire, to prevent unauthorized felling, and at

the same time to supply local needs. This last object is now attained by the formulation of systematic working-plans, under which improvement fellings are concentrated on selected areas (which are subsequently closed in rotation), and the produce so obtained is placed upon the market. Roads, tramways, wire ropeways, and the use of elephants (the department has 80 of these, about half of which were caught by its own officers in pits in the forests) have brought within reach timber that was formerly almost inaccessible. Some of the rivers, notably the Godāvari and the Beypore river, are utilized for floating timber down to the low country. Wood which will not float is buoyed up with lighter kinds or with bamboos.

Area of forests.

At the end of the year 1903–4 about 17,900 square miles (including forests leased from private proprietors) had been constituted 'reserved' forest, and a further 1,600 square miles had been notified as 'reserved' land and was awaiting the inquiry above referred to. Together, these tracts amount to 14 per cent. of the area of the Presidency; but the proportion varies greatly in different Districts, ranging from less than one per cent. of the District area (excluding *zamīndāris* and *ināms*) in densely populated Tanjore to more than 50 per cent. in the sparsely peopled Nīlgiris.

System of administration.

For administrative purposes the Presidency is divided into three Forest Circles, each under a Conservator, which are again divided into 28 charges, each under a District Forest officer. These last are usually conterminous with Collectorates, and are subdivided into ranges under rangers, and beats under foresters or guards. The Conservators are under the control of the Board of Revenue, and the District Forest office is a branch of the Collector's office. The native upper subordinates have many of them received training in the Dehra Dūn Forest School.

Statistics of revenue, &c.

The average revenue, expenditure, and surplus of the department in recent years are given below, in lakhs of rupees :—

	1884–90.	1891–1900.	1900–1.	1903–4.
Revenue . . .	13	20	24	27
Expenditure . .	10	15	17	18
Surplus . . .	3	5	7	9

Of the expenditure, a very large proportion has been devoted to works of permanent benefit to the valuable forest estate which the Government now owns.

Mines and minerals. Salt.

Of the minerals of the Presidency by far the most important is the salt obtained by evaporation of sea water in the numerous salt-pans along the coast of the Bay of Bengal. Statistics and particulars are given under Miscellaneous Revenue (pp. 103, 104). Except salt, the only minerals at present produced in any quantity are manganese, mica, saltpetre, and building materials, such as clay, granite, laterite, limestone, sandstone, &c.

Manganese.

Manganese ore has been worked in the Vizianagram *zamīndāri* by the Vizianagram Mining Company since 1893. In 1903 the mines, which are surface excavations from which the mineral is extracted by manual labour, produced 63,000 tons of ore valued at over 4 lakhs, and employed 2,700 hands. The whole of the produce is shipped from the port of Vizagapatam, and most of it goes to England. The quantity of ore in sight in this neighbourhood is immense. Manganese also occurs in the Sandūr State. The ore there is rich, and mining has recently commenced.

Mica.

Mica is found in several Districts, but is extensively mined only in Nellore. Operations there may be said to have been begun in 1887, but it was not until ten years later that the industry assumed considerable proportions. In 1904 the output in this District exceeded 230 tons, valued at more than 4 lakhs, and about 6,500 persons were employed in the mines. These are mainly owned by natives and are not elaborately equipped. The explorer generally selects his starting-point from surface indications, obtains a lease, and sets a few labourers to dig pits. Should the plot appear promising, he increases the number of labourers and uses explosives to blast the rocks in which the mica lies embedded. In these early stages no expensive plant is used, though, if the excavations eventually reach any considerable depth, machinery worked by hand-power or driven by steam is employed for drawing up spoil or keeping the excavation clear of water. Of 66 mines opened out in 1901, machinery was employed in only four. The mica is obtained in rough slabs of various dimensions, which are trimmed, cleaned, and sorted on the spot, and then packed and shipped. Most of it is sent to the United Kingdom[1].

Saltpetre.

Crude saltpetre is obtained by lixiviating the nitrous efflorescence found in several Districts, and is then sent to refineries. Since edible salt can be educed in these processes, manufacture is permitted only under licence from

[1] For further particulars of mica in this Presidency see vol. xxxiv, pt. II, of the *Memoirs of the Geological Survey of India*.

the Salt department. In 1903-4 there were 1,400 factories managed by natives for the production of crude saltpetre and 38 refineries, and the amount of refined saltpetre made was about 600 tons. Of this, the greater part was produced in the two Districts of Coimbatore and Trichinopoly.

Building materials.

Exact statistics of the quantities of clay and building stones extracted are not procurable. Excellent clay for tiles and bricks is found on the West Coast, and thirty factories for utilizing it are working there. Pottery clays and kaolin also occur in several Districts. Granite, laterite, limestone, and sandstone are widely distributed, and have always been extensively worked. Granite was the favourite material in days of old for the wonderful monolithic sculptures in the Hindu temples, and laterite is the ordinary building material of the West Coast. Slaty slabs known as 'Cuddapah slabs' are found in the District of that name.

Iron.

Many other minerals occur, but have not hitherto proved commercially profitable. Iron has been smelted in a primitive fashion by the natives from time immemorial in many Districts. The extraordinary deposits of magnetic iron in the KANJAMALAI HILL and other parts of Salem District are occasionally from 50 to 100 feet thick and run continuously for miles. The chief hindrance to working them is the scarcity of fuel, and so far operations have not been successful. Interest in the matter has revived of late years.

Coal.

Coal of inferior quality has been found at BEDADANŪRU near the upper reaches of the Godāvari river, and prospecting there still continues. A company formed in 1891 to work the Ratsagampalle field in the same District extracted about 3,000 tons in five years and then went into liquidation. The same fate overtook another company which prospected recently in Chingleput District.

Gold.

Gold is washed in the rivers of several Districts. The only considerable production recently has been from a shaft (now closed) sunk by the Mysore Reefs Company in the Kangundi *zamīndāri* in North Arcot, which adjoins the well-known Kolār gold-fields in the State of Mysore. The supposed capacities of the reefs in the Wynaad led to the floating in 1880 of numerous mining companies with an aggregate capital of four millions sterling; but the ore was found to be poor, the companies failed one after the other, and their machinery lies rusting in the jungle. The hope that modern methods, such as the cyanide process, might render the reefs profitable recently led a local syndicate to reopen operations; but this, too, has

now abandoned the attempt. Work has also been done recently under European management on old native workings in the north of Coimbatore District[1].

Magnesite. Deposits of great extent of the rare mineral magnesite occur in some hills near Salem town[2], called the CHALK HILLS from the innumerable white patches of this substance which cover their sides. The existence of this magnesite has been known for many years; and as the result of a series of investigations recently conducted by private enterprise under expert advice, it has been found that the mineral is likely to be useful for making plaster, tiles, paving-blocks, &c., and also in refractory linings for furnaces and as a dephosphorizing agent in the steel industry. The output in 1902 was returned as 3,500 tons, but in 1904 the mines were closed for some time and the output fell to 1,315 tons.

Graphite. Graphite, which has been worked in no other Province, is mined in Travancore, but the statistics of production are incomplete. In 1904 about 70 tons were also extracted in Godāvari District by the liquidator of the coal-mining company above referred to.

Corundum. Corundum is plentiful in Coimbatore and Salem Districts, and is worked in a fitful fashion by the natives[3].

Diamonds. Diamonds were formerly largely mined in the Presidency, and both the Koh-i-nūr and the Pitt (or Regent) diamonds are believed to have been found in it. Tavernier said that when he visited the mines at Kollūr in Guntūr District as many as 60,000 people were employed, and several other old workings are known to have existed. But at present the only operations are those of two companies which have been exploring near WAJRAKARŪR in Anantapur District. The villagers often find valuable gems on the surface in this neighbourhood.

Increase in prospecting. Though it will be seen that little is at present being done to exploit the mineral resources of the Presidency, it is a satisfactory symptom that prospecting has recently increased considerably, the number of licences issued having risen from 9 in 1899 to 13 in 1900 and 23 in 1901. In 1903 the figure fell again to 13. Information regarding minerals as yet un-

[1] For discussions of the probability of success in both these areas, see the reports by Messrs. Hayden and Hatch in vol. xxiii of the *Memoirs of the Geological Survey of India.*

[2] See report of Mr. Middlemiss of the Geological Survey on these areas (Madras Government Press, 1895).

[3] For further particulars, see Part I (Corundum) of the *Manual of the Geology of India* (Economic Geology).

worked will be found in Part III (Economic Geology) of the *Manual of the Geology of India*, and in the *Madras Index of Local Minerals* by Dr. King and Mr. Middlemiss.

Arts.

Cotton and silk fabrics.

Of the indigenous arts of the Presidency the only one which now employs any considerable number of persons is the weaving of silk and cotton, and even this is in a decaying state. Little more than a century ago (1796–7) the value of the cotton fabrics exported from India to England was £2,777,000, or one-third of the total of all Indian exports. In 1902 the imports of foreign cotton piece-goods at the port of Madras were valued at 171 lakhs, while the exports of the locally made fabrics amounted to only 59 lakhs. The exports to Great Britain include Madras handkerchiefs (repeatedly referred to in *Uncle Tom's Cabin*) and Ventupallam handkerchiefs. Natives of Southern India emigrate largely to Natal, Mauritius, the Straits Settlements, Ceylon, and Burma; and to these countries are consequently exported cotton goods adapted to the fashion and requirements of the emigrants.

An industry for which Southern India was till quite recently celebrated was the manufacture of block-printed and hand-painted cotton stuffs. Its decline was rendered conspicuous by a comparison of the collection of these fabrics exhibited at the Delhi Darbār Exhibition in 1903, with the splendid series which was sent to the Indo-Colonial Exhibition at London in 1886. Nowadays at former centres of this industry, e.g. Masulipatam and Wālājāpet, old wood-blocks, many with elaborate and beautiful patterns of Persian origin, may be seen piled up in corners or in the roof, covered with the dust and cobwebs of years. The printed cottons of Masulipatam consisted of canopies, screen-cloths, prayer-cloths, &c. At Kālahasti painted cloths are still made on which are depicted quaint illustrations of scenes from the Hindu epics, the Rāmāyana and Mahābhārata, with the story in Telugu characters; and at Cocanāda fabrics with the Tree of Life pattern are made, which, like those of Kālahasti, find a ready sale when brought into notice at exhibitions.

European manufacturers have not hitherto produced anything which can compete with the fine cotton and silk cloths for female attire made at Tanjore, Madura, Kuttālam, Kornād, Kampli, Adoni, and Arni; and the satins made at Ayyampettai, Ariyalūr, Arcot, and Wālājāpet, for women's jackets and Muhammadan trousers, are of considerable beauty. The fine lace-like patterns on the fabrics of Paramagudi, Mānāmadurai, and Pāmban, when drawn or painted by hand with the first

preparation of wax, are exceedingly effective. The muslins manufactured at Arni and Chicacole have been justly celebrated.

Woollen carpets are chiefly made at Ellore, Masulipatam, and Ayyampettai. Twenty years ago samples from these places were declared by competent authority to be in no respect inferior to old specimens in the hands of connoisseurs in London, or in native palaces. The carpets woven at Ellore are now made mainly to English designs for export to Europe. Carpets.

The manufacture of fine ornamental brass and bronze work, in the shape of many-branched lamps, sacrificial utensils, images, &c., for which Southern India was once famous, has become almost a lost art. The Madras Museum possesses a magnificent collection of arms from the Tanjore palace armoury, including two splendid damascened elephant goads of chiselled steel, which show to what a high state of perfection the local ironsmiths once brought their art. Of native jewellery, as worn by the upper as well as by the peasant classes, the Museum possesses a representative collection from all parts of the Presidency, acquired in connexion with the Indo-Colonial Exhibition. It has also a collection from Vizagapatam of little brass figures riding on horses, camels, and elephants, &c., which for skilful modelling, finish, and a certain irresistible grotesqueness of expression, are, Sir George Birdwood writes, the finest he has ever seen. Metal-work.

Tanjore is now the chief centre for metal-work, and the three main varieties made there consist of combinations of copper and silver and of brass and copper, and graven brass. The encrusting of copper with silver figures is a modern adaptation of an older art, and the demand for these wares is almost entirely European. The figures on trays, vases, and caskets are taken from the Hindu pantheon, and the floral decoration is conventional. Madras City has a reputation for its silver-ware, adapted to European requirements, with figures of Hindu gods crowded together. Brass trays and plates, into which thin plates of copper are let in or damascened, with crude representations of gods, are made at Tirupati. The pilgrims who resort to the local temple support the industry. There is also a considerable trade in small brass and copper deities of local manufacture. At Vellore exists an industry in pierced brass trays engraved with mythological figures. An interesting type of brass-work is carried on at Belugunta and other places in Ganjām, in the form of grotesque animals and human figurines, cast by

the *cire perdue* process, which are said to be used as wedding presents by the hill-tribe of the Kutiā Khonds. At Madura brass models of lizards, the praying mantis, cobras, frogs and other animals are made, and well-executed samples of the industry are obtainable on special order. At Kurumbalūr in Trichinopoly District there is an interesting industry in the manufacture of brass trays and vessels inlaid with zinc.

Ivory and horn-ware.

Ivory work has developed into a considerable industry in Travancore and Vizagapatam. In Travancore ivory carvers used to be employed regularly by the Mahārājās, and some fine specimens of their work, in the form of tankards with representations of the Tulābhāram and other ceremonies, are preserved in the palace at Trivandrum. The throne made at Trivandrum, which was sent to the London Exhibition of 1851 as a gift to the Queen, is a notable production from this locality. In recent years ivory-carving has become a branch of the Trivandrum Art School, and a beautiful carved box received a gold medal at the Delhi Exhibition in 1903. Western influence has greatly affected the design and character of the articles turned out, which include hand-mirrors, combs, paper-cutters, deer, hunting scenes, and—the Lion of Lucerne.

At Vizagapatam several firms make all kinds of fancy boxes, desks, paper-knives, combs, card-cases, bookstands, picture frames, chessboards, &c., of ivory, or of sandal-wood, rosewood, or ebony inlaid or overlaid with ivory fretwork. Various devices of Hindu deities and European floral design are incised in the ivory, and filled in with black lacquer (*sgraffito*). The industry is of quite recent origin. At Vizagapatam are also made various articles (animals, boxes, blotting-books, book-slides, &c.) in bison horn obtained from the hill tracts, tortoise-shell, and porcupine quills.

Lacquer ware.

The lacquer ware of Kurnool has been said to be perhaps the finest gesso-work produced anywhere in India. The work turned out at Mandasā in Ganjām is much bolder, and is suitable for decoration on a large scale. A similar method of decoration was formerly used largely in Saracenic architectural decoration of interiors in various countries. Kurnool lacquer can be satisfactorily employed only for boxes, trays, tables, and other articles of furniture. The patterns are floral and in slight relief, and the colours are very bright, with much gilding. At Nosam, leather dish-mats are painted with pictures of deities and floral designs. Native circular playing-cards and fans made of palmyra leaves, paper, and cloth, lacquered and painted in

brilliant colours, are also made here. Lacquered toys are manufactured at Vellore and Kondapalli.

Pith-work. At Trichinopoly very elaborate and accurate models of the great Hindu temples, artificial flowers, and bullock coaches are made of the pith of *sola* (*Aeschynomene aspera*), which is also used in the construction of *sola topis* or sun-hats. The Madras Museum possesses a quaint pith model of the Rājā of Tanjore in *darbār*, made many years ago.

Pottery. Much of the pottery so widely used by natives for domestic purposes possesses artistic merit as regards its shape. A collection is being formed by the Madras Museum, showing the marked variation, according to locality, in structure, shape, ornamental design, &c. At Karigiri, in North Arcot District, the pottery receives a pretty green glaze, and is made into vases and other receptacles, some of which are imitations of Delft ware and other patterns introduced through European influence in recent years. Some of the water-bottles are double, the outer shell being pierced so as to allow air to circulate around the inner. In South Kanara, water-vessels and toy representations of articles used for domestic or ceremonial purposes are made in black clay.

Mat-making. Of the mats of the Province, those made at Tinnevelly and Pālghāt are the best known. They are woven with the split stalks of a sedge (*Cyperus corymbosus*). It is said that a good mat will hold water for twenty-four hours, and that in Tinnevelly they are made so fine that a mat long enough for a man to lie upon can be rolled up and packed into the interior of a walking-stick. The reed mats and basketwork of Parlākimedi, Shiyāli, and Wandiwāsh may also be noted.

Lapidary work. At Settipālaiyam, a village near Tiruppūr in Coimbatore District, rock-crystal (quartz) spectacles, beads, *lingams*, figures of Ganesa, and other sacred symbols and images are made. The crystals are ground on emery disks made with powdered corundum, which abounds in the District. The amethysts found at Vallam near Tanjore are sent to Settipālaiyam to be polished. Articles for domestic use and carved idols are cut out of soapstone in several Districts. At Kārkala, in South Kanara, miniature copies are made in black stone of the colossal monolithic image there.

Wood-carving. At Tirupati, the great place of pilgrimage, mythological figures are carved in red sanders or white wood, and sold as votive emblems to pilgrims who visit the sacred hill. The figures are rough in finish, but executed in a bold free style. In the Cannanore jail double coco-nuts (coco-de-mer) are richly

carved, for use as liquor cases, with Burmese figures. Coco-nuts, for use as sugar basins, cruet sets, teapots, &c., are also carved with representations of peacocks, Burmese figures, and Hindu deities. The industry was originally started by Burmese convicts, but has since been taken up by Māppillas, Tiyans, and others in forced retirement. In Travancore very spirited and well-executed designs are carved on coco-nut shells; and at Kārkala in South Kanara young coco-nuts are, in like manner, neatly carved with floral, conventional, and mythological designs.

Factories. Cotton.

The factories of Madras are insignificant, the only undertakings of importance being those connected with cotton. In the various cotton-growing areas—notably in the Deccan Districts and in Tinnevelly and Coimbatore—there are a number of establishments for ginning, cleaning, and pressing raw cotton for export to the weaving and spinning mills in England and America, at Bombay, or within the limits of the Presidency.

Originally all the cotton presses were in Black Town, Madras, and the raw cotton was brought to them in carts, taking months upon the road. The cotton famine in Lancashire caused by the American Civil War gave a great impetus to the trade, and it was shortly afterwards further encouraged by the construction of the Madras Railway towards the cotton-growing areas in the Deccan. As the line advanced the cotton was carted to the nearest station, and when it reached the Deccan the presses were transferred thither from Madras. Ginning and cleaning mills followed, but most of the Deccan cotton is still hand-ginned. Much the same course was followed in Tinnevelly and Coimbatore. In 1881 there were in the Presidency thirty-four ginning and cleaning mills and cotton presses, and in 1891 the number was the same. But by 1903 these establishments (excluding those employing a daily average of less than twenty-five persons) had increased to fifty-three, which employed altogether 3,100 hands.

Statistics of the cotton-spinning and weaving mills in the Presidency are given below:—

Number of	1881.	1891.	1901.	1903.
Mills	3	8	11	12
Looms	..	555	1,735	1,747
Spindles	48,000	173,000	288,000	288,000
Hands employed daily	1,400	5,900	12,600	12,000

Of the twelve mills working in 1903, five (including the

Buckingham and Carnatic Mills, the two largest and the only ones in which weaving was carried on) were in Madras City, and three more were in Tinnevelly District. The total out-turn of all the mills is given below :—

	Thousands of pounds of	
	Yarn.	Cloth.
1896–7	29,319	5,285
1900–1	27,653	5,710
1903–4	28,714	5,344

The cloth woven is chiefly a coarse fabric, which is largely consumed locally and is also exported to the Straits Settlements and Ceylon. The yarn is nearly all of the lower counts, and much of it is absorbed by the hand-weavers throughout the Presidency. Formerly a large quantity went to China, but it has now been displaced there by yarn spun in Japan from American cotton.

Coffee-curing works.

After the factories connected with cotton, the works which employ the largest number of hands are those engaged in curing and otherwise preparing for export or use the coffee grown on the hill ranges. Except three in Coimbatore, all of these are situated on the West Coast, and (excluding, as before, the smaller concerns) they numbered eighteen in 1903 and employed a daily average of 4,700 hands.

Brick and tile factories.

On the West Coast, especially in the Districts of South Kanara and Malabar, are found clays which are excellently suited for the manufacture of roofing and ornamental tiles ; and twenty-eight factories, mostly under European management, were engaged there in 1903 in tile-making, while in Madras City there were three more, in one of which, besides bricks and tiles, cement and cement pipes were manufactured. These establishments employed 3,400 hands daily. The industry has grown rapidly in late years, the number of these works in 1891 having been only sixteen.

Tobacco factories.

The cigar-making industry is another which has recently made great strides. In 1903 there were twenty cigar factories, in which 1,600 hands were employed daily. Most of them are in Trichinopoly. The three largest are at Dindigul, Madras City, and Guindy (just outside the city limits).

Sugar factories and distilleries.

Factories in which sugar and spirits are made from sugar-cane and from the juice of various palms numbered three in 1881, five in 1891, and eleven in 1903. In the last of these years they employed 2,000 hands daily. The largest is that

belonging to a European firm at Nellikuppam in South Arcot District.

Other industries.

Except indigo-making and tanning, neither of which is conducted in factories in the strict meaning of the word, none of the other manufacturing industries of the Province employs as many as 2,000 hands daily, and it is unnecessary to refer to them in detail. Those in existence in 1903 (excluding, as before, the smaller ones which employed less than twenty-five hands) comprised a bone-crushing mill, 15 fish-curing yards, 2 glass-factories, a hemp mill, 3 hemp presses, 63 indigo vats, 7 iron and brass foundries, 28 oil mills, 7 rice mills, 7 ropeworks, 37 tanneries, and 4 timber mills.

A striking feature of almost all the manufactures of the Province is the great preponderance of European capital under European management. Native capital is invested in them to only a limited extent. The factories are too few and too scattered to exercise any appreciable effect on the labour market outside their immediate neighbourhood. The hands are drawn from the local labouring classes; and, as the employment requires a certain degree of special knowledge or skill, the rate of wages is somewhat higher than that which ordinary unskilled labour can obtain. The operatives are consequently slightly better off than their fellows, and there is no lack of labour.

Commerce and trade.

Commerce between England and Southern India began as far back as the early years of the seventeenth century, when the first factories were established by the Company at Masulipatam and elsewhere. The two commodities which formed the chief attraction to the merchants of those days were spices, especially pepper, and cotton fabrics. The manner in which the Dutch raised the price of pepper against the English in 1599 was one of the inducements which led the latter to push the trade with India; even in 1627 the annual exports of this commodity were worth £208,000. The cotton fabrics were largely muslins, dyed stuffs, and white calico. This last derives its name from Calicut in Malabar. The English goods which found the readiest market in those days were woollen stuffs of all kinds.

Value and nature of maritime trade.

In 1903-4 the total value of the maritime trade of the Presidency, inclusive of treasure and Government stores, amounted to more than 35 crores of rupees, or nearly 23 millions sterling; twenty years previously it had been only 14 millions. Of the total, 70 per cent. was carried on with foreign countries, nearly 23 per cent. with other Provinces, and about

1 per cent. with foreign ports in India; while 6 per cent. consisted of trade between the different ports of the Presidency. A comparison with the figures of twenty years earlier shows that the two former items have slightly increased in their relative importance at the expense of the two latter. The balance of foreign trade is in favour of Madras, exports usually exceeding imports by three millions sterling.

Chief imports and exports. The statistics of the trade of the Presidency with other Provinces and countries will be found in Tables VII and VIIA at the end of this article. On the whole, the largest imports are cotton piece-goods and twist and yarn. Next in value come metals and kerosene oil. By far the largest export is hides and skins. Next, but after a long interval, come raw cotton, coffee, and piece-goods.

The larger ports. Of the maritime trade nearly half is conducted through the port of Madras. Tuticorin stands next with about one-tenth of the total, and Cochin follows close after it. These two places have nearly trebled their trade during the last twenty years. After them come (in the order of their importance) Calicut, Mangalore, Cocanāda, Tellicherry, and Negapatam. In each of these eight ports the total value of the trade exceeds 100 lakhs, and over six-sevenths of the whole commerce of the Presidency is carried on at them. At Madras, the chief imports and exports are those which have already been mentioned as being most prominent in the statistics for the Presidency as a whole. Tuticorin receives the grain and pulse, cotton piece-goods, and spices required for the southern Districts, and is the outlet for the raw cotton, cotton goods, rice, sheep and goats, spices, and tea which they produce. Cochin exports tea, oil made from the nut of the coco-palm, and yarn and fibre manufactured from its husk, while its imports are chiefly grain and pulse. Calicut, Mangalore, and Tellicherry export to Europe the pepper and other spices for which the West Coast has been famous for the last three centuries, and also coffee, tea, and yarn and rope made of coco-nut fibre. Cocanāda ships much of the pungent tobacco which is grown on the silt islands in the Godāvari river, and Negapatam sends quantities of rice to Ceylon and cotton piece-goods to that island and the Straits Settlements.

There are Chambers of Commerce at Madras, Cochin, and Cocanāda. The first of these is the most influential of the three. It has the privilege of recommending for nomination a member of the local Legislative Council. Election to it is by ballot, and all merchants in Madras are eligible. There is

also a Trades Association in Madras. The only Harbour Trust is that at the same city. Its position and powers are governed by a special enactment. The other harbours are merely open roadsteads.

Inland trade centres.

Besides the ports, trade centres come into being inland wherever the chief articles of export are produced. Hides and skins are collected in the Districts where goats are most numerous, and sent by rail to Madras for export. Raw cotton comes to the presses which have been established at the chief towns (such as Bellary, Adoni, Tuticorin, Virudupatti, and Palladam) in the tracts where it is grown. Coffee finds its way to European agents at Calicut and elsewhere, who cure and export it. In every District there are one or more towns which are the recognized centres for the collection of exports and the distribution of imports.

Trade within the Presidency.

Of the trade within the Presidency, the maritime coasting trade, as has been seen, is of small importance. Bad agricultural seasons cause an increase in the movements of food-grain from Districts in which there has been a good crop to their less fortunate fellows, but much even of this now takes place along the railways.

Between the inland areas.

Rail-borne trade is registered in terms of certain fixed blocks of country, excluding the seaports, if any, within them. If the traffic with the seaports be left out of account, this internal trade consists in the exchange between the different blocks of the articles which each produces in excess. The maritime Districts in which there are Government salt-pans send salt, for example, to their inland neighbours; the delta Districts supply the less fertile areas with rice; the barren Districts where such crops as castor or horse-gram are perforce grown in large quantities send these grains to those tracts in which less hardy and more valuable staples are raised; areas blessed with forests send timber and bamboos to those which are not. Much exchange of the same kind is also effected by the bullock-carts of the country; but, except along routes through which it is in contemplation to construct fresh railways, this local traffic is not systematically registered, and it is not possible to gauge its extent or value.

With the seaports.

Except when famine gives a temporary impetus to the movement of grain, this trade from one block to another is, however, insignificant in comparison with that which occurs between the inland marts and the seaports. To the seaports come all the various articles produced or manufactured abroad which are now essential to the life of the towns (and even the

larger villages) throughout the Province—European piece-goods, kerosene oil from Burma, and hardware and metals from England and the Continent—and these are distributed to the inland centres of trade by the railways. In return the Districts send by rail to the seaports, for export, their surplus produce—hides and skins, raw cotton, food-grains, spices (such as pepper, ginger, cardamoms, areca-nut, and chillies), vegetable dyes and tans, &c.

Mechanism of this trade.

As has been said, there are in every District one or more recognized centres at which the major part of the distribution of the imports and the collection of the exports is carried on, and these are assisted by smaller centres trading with them, which in their turn depend upon the weekly markets held in almost every important village and by the ubiquitous small traders. The work is, as a rule, in the hands of particular Hindu castes of hereditary merchants—such as the Chettis of the Tamil country and the Komatis of the Telugu Districts. The members of the Nāttukottai subdivision of the former community are particularly enterprising, and travel frequently to Burma and the Straits and even have correspondents in England and on the Continent. Musalmāns keep many of the petty shops in the towns, and the Labbais among them manage the collection of the greater part of the large exports of hides and skins, any connexion with leather being repugnant to the caste prejudices of many Hindus. Special crops, such as cotton and ground-nuts, are usually collected for the large exporting firms by native brokers, who go at harvest time to the areas where they are grown and purchase the produce direct from the ryots.

Trade with other provinces and states.

Table VII at the end of this article gives the principal imports and exports by sea from and to other Provinces of India. Among the imports, grain takes the chief place. It comes from Burma and Bengal, and the bad season of 1900–1 caused a great increase in the quantity received in that year. Piece-goods, twist and yarn, and salt are three other prominent items. All of these come mainly from Bombay. Of the exports, the chief are ground-nut and coco-nut oil, the former of which goes principally to Burma and the latter to that Province, Bombay, and Bengal. Spices come next, which also go to Bombay and Bengal. Coco-nuts and ropes made of coco-nut fibre are other important items.

The rail-borne trade of Madras with other Provinces and States is chiefly conducted with the Nizām's Dominions and with Mysore. The exports of grain to these States is very

large; but otherwise the trade consists principally in the export to them of goods brought for them to the port of Madras by sea, and the import into Madras of articles which they wish shipped to other countries. The chief of these exports are provisions, piece-goods and yarn, and sugar; and of the imports, hides and skins and leather. Coal from the Singareni mines in the Nizām's Dominions is a considerable item in the imports, and among the exports coal and coke from Bengal for the Kolār gold-fields in Mysore used to figure largely. This last has decreased since the mines have been supplied with electrical power from the Cauvery Falls.

The trade with the French Possessions which lie within the Presidency, whether sea-borne or rail-borne, is of small importance.

Maritime trade outside India. It has already been seen that the trade with countries outside India amounts to 60 per cent. of the whole maritime trade.

Imports and exports. The chief foreign imports are piece-goods, twist and yarn, metals, and kerosene oil; the chief exports are hides and skins, raw cotton, and coffee. The piece-goods market fluctuates with the agricultural seasons, a bad year greatly reducing the demand. The trade in kerosene oil has developed in a remarkable manner. This oil at one time came chiefly from America, but subsequently much was received from Russia. The imports from that country began in 1886–7, and rose to 37 lakhs, but have since declined. Foreign coal used to form a prominent item among the imports, and in 1895–6 amounted in value to 20 lakhs. In 1889–90, however, Indian coal began to compete, and has since gradually displaced it.

Among the exports, hides and skins continue to increase, but the trade has undergone a great change. Formerly it consisted largely of tanned skins, Madras products being much esteemed in the market; but latterly the American process of chrome tanning has quite supplanted the native systems, and the exports are now mainly made up of raw hides and skins, which are sent to America to be tanned there. The trade in coffee has fallen off owing to the decline in prices. There was formerly a considerable export to China of twist and yarn made in Indian spinning mills, but these have now been largely displaced by goods spun in Japan from American cotton. Indigo has suffered from the competition of the synthetic dye, and sugar from the superiority and cheapness of the beet sugar of Europe, and the produce of Java and Mauritius. Piece-goods made in the Presidency go in increasing quantities to the Straits Settlements, Ceylon, and the Philippines. Among

minor items there have been notable advances in the exports of mica, manganese, ground-nuts, and tea.

Countries concerned.

Of the total foreign trade, 54 per cent. is with the United Kingdom. That with Ceylon ranks next. The island sends its spices and receives in return rice, oil-cake, cotton piece-goods, sheep and goats, and salted fish. The tonnage of the shipping between Ceylon and the Presidency has increased by nearly 70 per cent. in the last twenty years. The trade with the Straits comes third in importance. Madras imports spices and camphor, and exports piece-goods and animals.

The tonnage of shipping to and from the United Kingdom has decreased by 12 per cent. since 1880, while German shipping has advanced from 1,922 tons in 1880–1 to 122,000 tons in 1903–4. Russian ships were unknown in the former of these years, while in the latter they aggregated 32,000 tons. The United States and France have also increased their trade during this period.

Railways.

The railways of the Presidency belong mainly to two systems, both of which lie almost wholly within its limits. These are the systems worked by the Madras Railway Company and the South Indian Railway Company.

The Madras Railway.

The former is on the standard gauge (5 feet 6 inches) and consists of three chief lines. The first of these is a section of the state-owned East Coast Railway, which runs from the Royapuram terminus in Madras City north-east through the East Coast Districts to Calcutta. The Madras Railway Company works the line as far as Vizagapatam (497 miles), beyond which it is worked by the Bengal-Nāgpur Railway Company. The second line starts from the Central Station at Madras and goes through Chingleput, North Arcot, and the Deccan Districts to Raichūr, whence the Great Indian Peninsula Railway continues the route to Bombay. The third runs south-west through some of the southern Districts, and thence across the Western Ghāts by way of the Pālghāt Gap to the west coast. An extension to Mangalore is under construction.

There are several branches from these three lines, among them being that to Bangalore, the metre-gauge branch from Shoranūr to Ernākulam (65 miles) belonging to the Cochin State, and the Nīlgiri rack railway to Coonoor (17 miles) which is shortly to be extended to Ootacamund. From the section of the East Coast line worked by the Bengal-Nāgpur Railway (which is 213 miles in length) runs the Parlākimedi light railway (25 miles, 2 feet 6 inches gauge) belonging to the Rājā of the *zamīndāri* of that name. The total length of

the system worked by the Madras Railway was 839 miles in 1891, and 1,489 miles in 1904. The Madras Railway proper (900 miles) is one of the old Company lines working under a state guarantee of 5 per cent. The deficit in earnings made good by Government up to the present amounts to over ten millions sterling. Government has power to determine the contract in 1907.

The South Indian Railway.

The South Indian Railway, a state-owned metre-gauge line which is worked by a company, runs from the Egmore terminus in Madras to the port of Tuticorin, whence steamers ply, in connexion with the mail trains, to Colombo, and so place Madras in communication with the ocean liners which touch there. The line has numerous branches. The longest of these is that which goes from Villupuram to meet the Southern Mahratta Railway at Dharmavaram. Others are that from Villupuram to Pondicherry, of which 8 miles are the property of the French Government; that from Māyavaram to Arantāngi (99 miles), belonging to the Tanjore District board; and that from Tinnevelly to Quilon, of which 58 miles belong to the Travancore State. The total length of the line open was 909 miles in 1891, and 1,353 miles in 1904.

The Southern Mahratta Railway.

The Southern Mahratta Railway, most of which lies within the Bombay Presidency, owns 545 miles of line in Madras. The most important section is the line from Bezwāda to Guntakal, which connects the rich deltas of the Kistna and Godāvari with the infertile Deccan. From Guntakal the railway also runs westward through Bellary to the Bombay frontier, and thence to Hubli; and southwards through Dharmavaram to the limits of the Mysore State and on to Bangalore.

In the Presidency as a whole there were 2,108 miles of line open in 1891, and 3,545 miles in 1904, of which 1,623 were on the standard gauge, 1,897 on the metre-gauge, and 25 on the 2 feet 6 inches gauge. There was thus in 1904 one mile of railway to every 43 square miles of area, including Feudatory States.

Lines projected.

Among projected lines are that from Raipur in the Central Provinces to Vizagapatam (359 miles), which would provide an outlet to the coast for the produce of those Provinces; the extension of the South Indian Railway across a tidal channel to the island of Pāmban (Rāmeswaram), where it is in contemplation to make a port for ocean-going vessels; and several local lines which some of the District boards propose to encourage by guaranteeing the interest on their cost from the proceeds of a special cess levied under the Local Boards Act.

Influence of railways on famine and prices.

The railways have influenced many matters, but few so greatly as famine and prices. By facilitating the rapid movement of grain, they prevent local failures of crop from causing acute distress. In the famine of 1876–8 one of the greatest difficulties with which the local officers had to contend was the physical impossibility of importing food in sufficient quantities to the distressed areas; bullock-carts were the only means of transport and there was no fodder for the bullocks. The grain market is now extremely sensitive, and where the harvest fails supplies quickly pour in by rail from elsewhere. Some of the railways of the Presidency were primarily constructed in order that their influence might in this way check the worst effects of any failure of rain.

While the railways thus sometimes enable the ryots of fortunate Districts to sell at a good profit the surplus grain which would otherwise glut the market, they also operate to equalize rates so that the exceedingly high prices which made fortunes in special localities in days gone by are now unknown. They probably, also, have checked the former habit of storing in pits the unmarketable surplus grain of the fat harvests as a reserve against the lean years of the future. They have greatly lowered the cost in the inland Districts of all foreign articles imported at the seaports, and of the salt which is made in the various factories along the coast. The great temples have profited by the railways, attendance at festivals being usually much larger than in the days when the long journey had to be performed painfully on foot.

Roads.

The roads of the Presidency are almost all maintained by the District boards. A few which traverse hills, and so require professional care, are in charge of the department of Public Works. Statistics are appended:—

	District board roads.		D.P.W. roads.	
	Mileage.	Cost of up-keep.	Mileage.	Cost of up-keep.
		Rs.		Rs.
1891 . .	20,100	22,07,000	470	1,31,000
1901 . .	21,700	24,64,000	500	1,37,000
1903 . .	22,200	26,12,000	590	3,06,000

The chief lines of through communication are the northern trunk road from Madras to Calcutta, the southern to the Travancore frontier, and the western to Calicut. These and many of the other main lines were originally aligned

in accordance with military needs. The construction of feeder roads to railways is a point which now receives much attention. The railways have indeed in some Districts changed the whole course of the old trade routes, roads on which there was once heavy traffic being now almost deserted. The bullock-carts are of an unusually good pattern, having strong spoked wheels five feet in diameter fitted with iron tires. The tread of these last is, however, so narrow that they quickly cut up a soft road. Passenger traffic on frequented routes is conducted in light two-wheel covered carts with springs, known as *jatkas*, which are drawn by the small but hardy pony of the country.

Tramways. The only public tramway at present running is the electric system in Madras City. This is 9 miles in length, works on the overhead trolly method, was purchased by the present company from the original proprietors for Rs. 12,96,000, earns over 4 per cent. on its capital, and carries annually six millions of passengers.

Navigable canals. The chief navigable waterways in the Presidency are the canals in the deltas of the Godāvari (493 miles) and the Kistna (307 miles), and the Buckingham Canal (262 miles). All these are connected, and thus place Madras City in direct communication by water with the deltas. The delta canals were primarily designed as irrigation works, and are closed for from one to three months every year for repairs. The annual traffic carried by them amounts to 15 million tons. The cost of construction of the Buckingham Canal was 90 lakhs; and though it carries $12\frac{1}{2}$ million tons of traffic annually its working results in a deficit, the expenses being Rs. 91,000 and the receipts Rs. 71,000.

Steam navigation. On the Godāvari canals there are four Government steamers, and on those in the Kistna delta three. Along the coast the boats of the British India Steam Navigation Company touch periodically at Madras and other ports, and also run to Bombay, Colombo, Calcutta, and Rangoon.

Except on the canals already mentioned, on the Godāvari river, and on the rivers and backwaters of the West Coast, there is little inland navigation. On a few of the rivers coracles or circular boats made of hides stretched over a framework of bamboo are used for local traffic or at ferries.

Post Office. The Presidency and its Feudatory States (except Travancore and Cochin, which have postal arrangements of their own) form with Coorg, Mysore, and a few post offices in Hyderābād a Postal Circle in charge of the Postmaster-General of Madras.

The figures in Table VIII at the end of this article show the marked advance in postal business which has taken place in recent years.

The causes of famine in India and the policy and methods adopted by the Government in combating it are described in chapter x of Volume III of this Gazetteer. In the Madras Presidency the only considerable tracts immune from the scourge are the West Coast—where, thanks to the Western Ghāts, the rain seldom or never fails—and the deltas and other areas which are irrigated by the great rivers which rise in that range. The relative importance to the cultivator of the two chief rain-bearing currents—the south-west and the north-east monsoons—differs in different areas according to agricultural practice. In the Deccan, for example, it is the custom to sow the greater part of the food-grains on 'dry' land with the light rains of the former, and if this fails twice in succession scarcity is certain. In the south, on the other hand, where food-crops are largely grown on 'wet' land with water from artificial reservoirs which should be filled by the north-east monsoon, it is the failure of this latter current which is most keenly felt.

Famine. The only areas immune.

Of the earlier scarcities in Southern India there is little exact information. The records of the Madura Jesuit Mission contain accounts of famines which occurred in 1648, 1659–62, 1677, and 1709–20. In 1633 the Masulipatam factors wrote home that 'the living were eating up the dead, and men durst scarcely travel in the country for fear they should be killed and eaten.' In 1647 the inhabitants of Fort St. George were feeding on carrion beef begged from the neighbouring Musalmān camp, and were sending piteous appeals for provisions to Masulipatam. Between 1729 and 1733 a famine following persistent neglect of the irrigation tanks drove prices up threefold. In 1782–3 Haidar Alī's devastations produced severe distress in Madras City, and for several weeks 1,200 to 1,500 dead bodies were daily collected in the streets and buried in great trenches outside the town.

Early famines.

Other famines and scarcities occurred during the years, and were worst in the Districts, set out below[1]:—

Later famines and Districts affected.

1791–2. Ganjām, Vizagapatam, and Masulipatam.

1806–7. Nellore, North Arcot, and Chingleput, and less severely in the Deccan Districts and South Arcot.

[1] For particulars of those prior to 1865-6 see Mr. Dalyell's memorandum on the famine of that year. For the others, down to that of 1896–7, see the Reports of the Famine Commissions of 1880 and 1898.

1823–4. Deccan Districts, Vizagapatam, Guntūr, Nellore, North and South Arcot, Madras, and Salem.

1832–4. ('The Guntūr Famine') Guntūr, Nellore, Masulipatam, Cuddapah, Bellary, and North Arcot.

1853–4. Bellary.

1865–6. Ganjām, Bellary, North Arcot, and Madura.

1876–8. ('The Great Famine') Deccan Districts, Nellore, Chingleput, Salem, and Coimbatore.

1884–5. Bellary and Anantapur.

1888–9. Ganjām.

1891–2. Deccan Districts, Nellore, Chingleput, North Arcot, Salem, Coimbatore, and Tinnevelly.

1896–7. Deccan Districts, Ganjām, Vizagapatam, and part of Godāvari.

1899–1900. Deccan Districts and the parts of Kistna and Nellore adjoining them.

1901. Parts of Cuddapah, Anantapur, Chingleput, and North Arcot.

The list shows that the four Deccan Districts—Cuddapah, Kurnool, Bellary, and Anantapur—where the rainfall is light, the soil usually infertile, and large irrigation works are few, have suffered more consistently than any others, though Nellore is not far behind them in this melancholy precedence.

By far the most disastrous of all these visitations were the Guntūr famine of 1832–4 and the great famine of 1876–8. In the former it was calculated that of the 500,000 people in the old Guntūr District 150,000 died, and the loss of revenue, excluding the sums spent upon relief, was 52 lakhs. The latter lasted twenty-two months, affected fourteen of the twenty-one Districts of the Presidency, is calculated to have caused the death of 3½ millions of people, and cost the state 630 lakhs in direct expenditure besides 191 lakhs in loss of revenue. In one week in September, 1877, more than 2¼ millions were in receipt of relief, of whom 700,000 were on works. Even in 1901, twenty-five years later, the population of Cuddapah and Kurnool continued to be less than it was before this visitation. In the famine of 1891–2 the direct expenditure on relief and works was 18 lakhs, and the remissions of revenue were 40 lakhs in excess of the normal. In the famine of 1896–7, the amount spent on relief was 86 lakhs, and remissions of revenue were granted to the amount of 24 lakhs.

Progress in famine administration. The history of these famines is the history of progress and improvement effected in the methods of fighting them. Relief works were first opened in 1791–2. In 1806–7 the principle of

moderation in the collection of land revenue during scarcity was laid down. After that date the Government no longer attempted the useless and dangerous interference with the grain market which had previously been the practice. In 1865–6 private relief made its first organized effort, $2\frac{3}{4}$ lakhs being subscribed locally. In 1876–8 the railways played an important part in the distribution of grain to affected tracts, attempts were made to insist on a proper testing of those who applied for relief, weavers received advances to be repaid in woven cloth instead of being required to face the unaccustomed labour of the ordinary relief works, and large advances were made for the purchase of seed and the repair and construction of wells. In the distress of 1891–2 the methods of relief had become so far systematized that, excluding cholera, the death-rate was not much in excess of the normal; and even in the much severer famine of 1896–7 the Famine Commission of 1898 found that 'the loss of life due to the indirect results of privation was remarkably small.' In this last distress the complicated machinery necessary to the system of relieving weavers by advances was so greatly improved that in the subsequent scarcities of 1899–1900 and 1901 more than 90 per cent. of the advances made were recouped by the sale of the cloths woven, and the cost of relief of this class was thus reduced to a minimum.

Protective measures. As long as the people continue to depend mainly upon the land, the cultivation of which itself depends upon a capricious rainfall, so long will continuously deficient monsoons result in famine; but the elaborate system of agricultural intelligence in force, and the weekly reports of rainfall and prices and of the state of the pasture, crops, and irrigation supplies, prevent adverse seasons from taking the authorities by surprise; while the rules regarding the maintenance of lists of schemes suited for relief works and the codes of instruction to all officers concerned ensure that they shall not be found unprepared. But even though these safeguards are now sufficient to prevent deaths from actual starvation, ordinary diseases find easy victims in those who are weakened by privation, and census statistics clearly show that distress occasions a reduction in the birth-rate by its effect upon the reproductive powers. Human efforts cannot make the monsoons less irregular, but they can provide the people with occupations that will render them less at the mercy of this irregularity; and the strongest protection against famine would be the exploitation by private capital of the natural resources of the Presidency, and the reduction that

would follow in the present overwhelming preponderance of those who depend directly or indirectly for their daily bread upon the land.

General method of administration.

The various branches of the administration of the Presidency are in the immediate charge of a number of departments. Each is usually under the control of the head of the department, to whom are entrusted considerable powers of independent action. Thus the head of the Police department is the Inspector-General of Police. Heads of departments correspond with the Government through the Secretariat. This is divided into a number of branches, controlled by different secretaries, each of which deals with the work of certain specified departments. Finally, each branch of the Secretariat is under the control of one of the three Members of the Government, and submits for his orders all questions connected with the matters with which it deals. In this way executive control is greatly decentralized, while ultimate authority is exercised through a branch of the Secretariat and by a Member of the Government, both possessing special knowledge of the needs and circumstances of each department.

The Government.

The three Members of the Government are the Governor and his Council of two members of the Indian Civil Service, all of whom are appointed by the Crown. They constitute the Local Government, in which is vested the administration of the Presidency. Though each of them has charge of certain specified departments and their individual orders issue as those of the Governor-in-Council, certain classes of subjects and all matters of importance are disposed of by two Members, or by the whole Council, in consultation.

The Secretariat.

The Secretariat is divided into the following branches:—Financial, Political, Judicial, Public, Ecclesiastical, Marine, and Pension, under the management of the Chief Secretary to Government; Revenue, under the Revenue Secretary; Local, Municipal, Educational, and Legislative, under a third secretary; and the three branches of Public Works—Roads and Buildings, Irrigation, and Railway—each under a secretary of its own.

The Board of Revenue.

Legislative and Judicial administration are referred to in more detail below. Matters connected with revenue administration are especially complex and heavy; the Government is relieved of detailed control over a large proportion of them by the Board of Revenue, a body which has the same authority over Collectors and other revenue officers as is possessed by Commissioners of Divisions in other Provinces. Letters on

matters relating to revenue administration are usually addressed to the Board instead of to the Government. It consists of four Members, of whom two usually control matters connected directly with the Land Revenue (including Forests and *ināms*), a third has charge of Revenue Settlement, Land Records and Agriculture, and the fourth supervises the Salt, Abkāri, and Separate (Customs, Stamps, Income tax, &c.) Revenue. The orders of each Member issue as those of the whole Board, but matters of importance are decided by two, three, or all four of the Members in consultation. The Board is further a Court of Wards, with legal power to administer landed estates, the heirs or proprietors of which are incapacitated from managing them themselves.

Districts.

For almost all purposes the unit of Provincial administration is the District or Collectorate. The Presidency is divided into twenty-two[1] such Districts, statistical particulars for each of which are given in Table I at the end of this article. Excluding the exceptional cases of Madras City, the Nīlgiris, and Anjengo, a District contains on an average 7,000 square miles and 1,879,000 inhabitants. The chief executive and magisterial officer in each is called the Collector and Magistrate, while the chief judicial officer is the District and Sessions Judge. The powers and duties of the Collector-Magistrate embrace almost every subject which comes within the functions of a civilized government; and he is not only, as his title implies, responsible for the collection of revenue from the land, the customs, the salt and excise monopolies, &c., &c., and for the supervision of the magistrates within his charge, but he has also to control the working of the various departments which deal with forests, irrigation, police, jails, education, sanitation, hospitals, vaccination, roads, and so forth.

Tāluks.

Each District is arranged into three or four subdivisions, under the immediate charge, subject to the Collector's control, of divisional officers, the majority of whom are Deputy-Collectors recruited in India; and these are again divided into *tāluks* in charge of native *tahsīldārs*, assisted, when the work is specially heavy, by deputy-*tahsīldārs*. *Tāluks* are the units of District administration, just as Districts are those of Provincial administration. They are divided into *firkas*, in each of which a revenue inspector is in immediate charge of the details of revenue work. The ultimate unit for all fiscal and administrative purposes is the village. Each of these has a headman, who is responsible

[1] As already stated on pages 2-3, this number has recently been raised to 24.

for the due collection of the revenue and possesses petty judicial powers; an accountant, who maintains its records; and a varying number of menial servants under the orders of these two officers. Succession to all village offices is usually hereditary, and the powers and duties of their incumbents have undergone but little change since the earliest days of which history gives any account. There are 84 subdivisions, 231 *tāluks*, and 657 *firkas* in the Presidency. The average area and population of a subdivision are 1,687 square miles and 454,752 inhabitants, and of a *tāluk* 613 square miles and 165,364 inhabitants. The total number of villages is about 55,000.

District officers.

The staff of each District, with two or three exceptions, includes (in addition to the Collector, the Judge, and the divisional officers), an Executive Engineer, a District Forest officer, a District Medical and Sanitary officer, and a Superintendent of police, all of whom are generally Europeans. They are immediately subordinate to the heads of the various departments to which they belong, and assist the Collector in the administration of these departments. There is further a Local Fund Engineer (see Local and Municipal Government, p. 109), who is in immediate charge of the roads, bridges, and smaller public buildings of the District.

Native States within the Presidency.

Five Native States have direct political relations with the Government of Madras. These are TRAVANCORE, COCHIN, PUDUKKOTTAI, BANGANAPALLE, and SANDŪR. Their area and population are given in Table I. The Mahārājā of Travancore and the Rājās of Cochin and Pudukkottai are entitled to salutes of nineteen, seventeen, and eleven guns respectively. All three maintain a limited number of troops. Travancore and Cochin have their own postal services. The former also mints its own coinage.

Their relations with the Government.

Travancore and Cochin were recognized principalities before the British were supreme in the South, and are held under treaties made originally with the Company. Possession of the other three States has been confirmed by grants. Pudukkottai was given to an ancestor of the present Rājā in return for services to the British in the wars of the eighteenth century. Banganapalle was a feudal estate at the time when it was ceded by the Nizām to the Company, and its position was continued. Sandūr was originally feudatory to the Marāthās, and its chief was allowed to retain the State in consideration of his family's long possession. The treaties require Travancore to pay a tribute of 8 lakhs and Cochin a tribute of 2 lakhs. Travancore and Cochin lie next one another on the west coast, and affairs

in them are controlled by the Madras Government through a British Resident for both. Pudukkottai lies south of Trichinopoly District, while Banganapalle and Sandūr are in the Deccan. The Government Political Agent in each of these three States is the Collector of the adjoining District: namely, Trichinopoly, Kurnool, and Bellary. The previous approval of the Madras Government is obtained by all five States to any legislation or legal regulation they propose to enact or adopt; the Resident in Travancore and Cochin and the three Political Agents are kept informed of, and invited to advise regarding, all matters of importance arising within them; and each State makes an annual report upon all branches of its administration, which is forwarded to the Resident (or the Political Agent) and by him submitted to the Government with his remarks and suggestions.

The local Legislative Council.

The laws in force in the Presidency comprise such of the enactments of Parliament and of the Governor-General-in-Council as apply to it, those of the local Regulations made prior to 1834 which are still unrepealed, and the measures passed from time to time by the local Legislative Council. Under the provisions of the Indian Councils Acts, 1861 and 1892, this Council consists of the three members of the Executive Council already mentioned, the Advocate-General, and not less than eight nor more than twenty additional members nominated by the Governor. Regulations made under the Indian Councils Act, 1892, provide that of these twenty members not more than nine shall be officials, and that of the remaining eleven seats thus reserved for non-officials nominations shall be made by the Governor to seven on the recommendation of (*a*) the Municipal Commissioners of Madras, (*b*) the Senate of the University, (*c*) the Chamber of Commerce, (*d*) the Municipalities and (*e*) the District Boards of the northern Districts, and (*f*) the Municipalities and (*g*) the District Boards of the southern Districts. These regulations further provide that to the remaining four seats the Governor may nominate non-officials in such manner as shall in his opinion secure a fair representation of the different classes of the community, and that one of them shall ordinarily be held by a *zamīndār* paying to Government an annual land tax of not less than Rs. 20,000. Subject to certain rules and restrictions, the members of the Legislative Council may put interpellations to the Government regarding matters under its control, and may discuss the annual financial statement. Acts passed by this Council require the approval of the Governor and also of the Governor-General,

and even if so approved are subject to disallowance by the Crown.

Recent legislative measures.

The more important of the Acts passed by the local Legislative Council during the past twenty years are the Forest Act (V of 1882), which is the foundation of the whole forest policy of the Presidency; the three Acts which control Local and Municipal Government, namely, the District Municipalities Act (IV of 1884), the Local Boards Act (V of 1884), with the subsequent Acts amending them, and the Madras City Municipal Act, 1904; the Abkāri Act (I of 1886) and the Salt Act (IV of 1889), which are the basis of the present policy in these two branches of the administration; the Madras Court of Wards Act, 1902; and the Madras Impartible Estates Act, 1904.

Civil courts in Madras City.

Civil justice is administered in Madras City by three civil courts: namely, the Small Cause Court with jurisdiction in suits up to Rs. 2,000 in value, the City Civil Court with jurisdiction up to Rs. 2,500 in suits which are not cognizable by the Small Cause Court, and the High Court. The High Court, consisting of a Chief Justice and five Puisne Judges appointed by the Crown, has original jurisdiction over all suits arising within Madras City except those which are less than Rs. 100 in value and are triable by the Small Cause Court; powers of appeal and control over all courts within the Presidency; and, under its letters patent, insolvency, testamentary, admiralty, and matrimonial jurisdiction.

Civil courts in the Districts.

Outside Madras City the civil courts are of five classes: namely, Village, Revenue, District Munsifs', Subordinate Judges', and District Courts. The ordinary courts have, however, no jurisdiction in the Agency tracts in the three northern Districts, judicial functions in these being exercised by the Revenue officers, subject to appeal to the High Court from decrees in original suits passed by the Agent to the Governor, to certain powers of revision by the same tribunal, and to ultimate appeal to the Governor-in-Council.

Village Courts are presided over either by village headmen or by benches of village elders, and ordinarily have jurisdiction up to Rs. 20; their decrees are subject to revision by District Munsifs. Revenue Courts are held by divisional officers to try summarily questions regarding agricultural tenancy in proprietary landed estates, and an appeal from their decisions lies to the District Court and ultimately to the High Court. In 1904 first appeals were filed against 30 per cent. of their appealable decrees, 51 per cent. of which were successful. District Munsifs hear the majority of the suits in the Districts.

They have ordinary jurisdiction up to Rs. 2,500 and Small Cause jurisdiction up to Rs. 50, or, if specially so empowered, up to Rs. 200. Appeals from their decisions lie to the District Courts. In 1904 appeals were preferred in the case of 12 per cent. of their appealable decrees, of which 37 per cent. were allowed. Subordinate Judges are practically assistants to the District Judges. They are appointed where the District Courts are heavily worked, have jurisdiction to the same amount as District Judges, and usually try such suits and appeals as these judges may transfer to their files, or are specially empowered to hear appeals from certain of the Munsifs' Courts. They also have Small Cause jurisdiction up to Rs. 500. District Munsifs and Subordinate Judges are nearly all natives of the country.

There is a District Court in every District except Anantapur and the Nīlgiris (which are subject to the District Courts of Bellary and Coimbatore respectively), and in Malabar there are two. They are usually presided over by members of the Indian Civil Service, and have original jurisdiction in suits above Rs. 2,500 in value and appellate powers in suits up to Rs. 5,000, appeals in cases above this value lying to the High Court. In certain cases an appeal from the High Court's original and appellate orders lies to the Judicial Committee of the Privy Council. District Judges have general control, subject to rules prescribed by the High Court, over courts of all grades within the District.

Statistics of civil courts and suits.

In 1904, including Agency Courts, there were 5,236 Village, 63 Revenue, 142 District Munsifs', 24 Subordinate Judges', and 23 District Courts. Table IX at the end of this article gives particulars of the suits tried by them and by the courts in Madras City during the past twenty years. Litigation varies in amount directly with the prosperity of the people. The richer Districts contribute a larger share of the total than the poorer ones, and this total increases when the seasons are favourable and money is plentiful.

The various classes of criminal courts.

Criminal justice is administered by courts of various powers. Offences under the Penal Code are classified according to their gravity as Sessions cases, or as triable by (*a*) a first-class, (*b*) a second-class, or (*c*) any magistrate. Sessions cases include all the graver forms of crime. They are first inquired into by a magistrate and then, if a prima facie case is made out, are committed for trial to a Court of Session. First-class magistrates can award imprisonment for two years and a fine up to Rs. 1,000, and also sentences of whipping; second-class

magistrates, imprisonment for six months and a fine of Rs. 200, and also whipping when specially empowered; and third-class magistrates, imprisonment for one month and a fine of Rs. 50.

Courts in Madras City.

In Madras City, the four Presidency Magistrates have first-class powers subject to appeal to the High Court, and the High Court is the Court of Session.

Magistrates' Courts in the Districts.

Outside Madras City there are Village, Bench, Cantonment, Special, Subordinate, Subdivisional, and District Magistrates, and Sessions Judges. Village magistrates are the village head-men, who under special enactments have power to try petty cases of abuse, assault, and theft, and to imprison for twelve hours or to put offenders of the lower classes into the stocks for six hours. The Cantonment Magistrates are usually Station Staff officers who have third-class powers within the limits of their cantonment, but at St. Thomas's Mount there is a whole-time Cantonment Magistrate with first-class powers. Benches of Honorary Magistrates, presided over by an official Subordinate Magistrate and usually possessing second-class powers, have been constituted in some of the larger towns to try offences against certain local and municipal laws. Special Magistrates are generally officials of executive departments who have been invested with powers (usually third-class) for the trial of cases of similar kinds in some of the smaller towns. The Subordinate Magistrates are officials with either second or third-class powers, and they hear the bulk of the minor cases in the Districts. There is usually one of them at the head-quarters of each *tāluk*. *Tahsīldārs* have second-class powers *ex officio*, and in the smaller *tāluks* they exercise these as well as their revenue powers. Elsewhere separate Sub-magistrates are appointed to relieve them of the duty of hearing criminal cases. Deputy-*tahsīldārs* are generally Subordinate Magistrates within their charges. All these, except Cantonment Magistrates, are usually natives of the country. The Subdivisional Magistrates are the divisional officers. They usually have first-class powers, and appeals from the Subordinate Magistrates within their charges lie to them. They are also, if Europeans, usually Justices of the Peace, and as such are the lowest courts which can try a European British subject. District Magistrates have similarly first-class powers and are Justices of the Peace. They do little actual magisterial work, but exercise control over all the subordinate criminal courts within their Districts.

Sessions Courts.

The Sessions Judges are the same persons as the District

Judges. There are thus, as before, one in every District except Anantapur and the Nīlgiris, and two in Malabar. Where the work is unusually heavy, Additional and Assistant Sessions Judges are appointed. In the Agency tracts Collectors have the powers of Sessions Judges. Sessions Courts try sessions cases committed to them and have power, subject to appeal to the High Court, to pass the maximum sentences allowed by the Penal Code, except that sentences of death require the confirmation of the High Court. Sessions trials are heard either by a jury or with the aid of assessors. In the Agency tracts, where the jury system is not in force, the latter procedure is always adopted. Sessions Courts have also appellate powers over the orders of the first-class magistrates within the District.

Statistics of criminal courts and cases.

In 1904 there were 4,370 Village, 58 Bench, 4 Cantonment, 47 Special, 471 Subordinate, 91 Subdivisional, and 23 District Magistrates, and (including Additional and Assistant Sessions Judges) 22 Sessions Judges. Eight per cent. of the persons convicted by subordinate courts filed appeals to first-class magistrates, 38 per cent. of them being successful; and 26 per cent. of those sentenced by first-class magistrates appealed to Sessions Courts, 29 per cent. of them securing a reversal of their convictions. Statistics of the persons tried by all the courts of the Presidency taken together are shown in Table IX at the end of this article. Unfavourable seasons usually produce an increase of crime.

Registration.

Under the Indian Registration Act (III of 1877) certain classes of documents must be registered to obtain validity in a court of law. Registration of others is not compulsory, but the law provides that priority in effect will be given to a registered document over one that is unregistered. Offices have been established all over the Presidency in which documents are registered, the operation consisting in copying them at length and indexing them in a specified manner. The figures shown below give the offices open and the documents registered in them in recent years, and it will be seen that the people are availing themselves in increasing numbers of the safeguard thus provided:—

	Average, 1881-90.	Average, 1891-1900.	1901.	1904.
Number of offices	331	412	438	450
Documents registered	550,740	842,279	995,764	986,632

Finance. Systems of previous governments.

The financial system under the rulers who were the immediate predecessors of the Company in the greater part of the Presidency, the Sūbahdār of the Deccan and his subordinate the Nawāb of Arcot, was probably in practice the worst that the country had ever known. Its principles and the sources upon which its revenue depended were much the same as in the days of the Vijayanagar kings from whom the Musalmāns had taken the country; and, as is shown by inscriptions recently deciphered, the Vijayanagar rulers, whether consciously or not, had followed in many points the system originated as far back as the eleventh century by the ancient Cholas. Under Vijayanagar, the country was divided into provinces in the charge of governors, who were bound to provide a fixed contribution to the royal exchequer, maintain a certain number of troops, and police their charges. Any revenue which remained after these duties had been fulfilled remained with the provincial governor. This system of sub-renting the collection of the state demand persisted in varying forms for centuries afterwards, and in one or two instances continues even to the present time.

All history (and notably the letters of the Jesuits of those days) shows that under Vijayanagar, and still more under the Naik dynasty of Madura and the Marāthās of Tanjore (who held much of the country between the fall of Vijayanagar and the consolidation of the Musalmān dominion), and most of all under the Musalmāns themselves, the collection of the various items of revenue was accompanied by merciless oppression of the common people.

Under the Musalmāns the right of collection was farmed out to the highest bidder, who invariably extorted far more than his dues. The chief item of revenue was the land assessment; and though in theory the state dues were usually one-half of the gross produce paid in kind plus the fees due to the village officers (in itself an excessive demand), in practice almost the whole crop was often seized, the cultivators being left only with what they could conceal or make away with. The farmers of the land customs (another considerable item of revenue) established stations, often at intervals of only ten miles, along the roads, and exacted dues on all merchandise, even on grain, on any principles they chose. Duties were collected on salt and on imports and exports; the monopoly of the sale of spirituous liquors, tobacco, and betel was leased out; and taxes were levied on every kind of trade, craft, and profession, and even sometimes on mere labourers. In each

of these cases the unscrupulous renters wrung every anna possible from those who were placed in their power.

The beginnings of Provincial finance.

A general history of the finances of India since the British occupation has been given in chap. vi of Vol. IV of this *Gazetteer*. Madras participated in Lord Mayo's decentralization scheme of 1870, by which the expenditure under certain heads was for the first time left to the control of Local Governments and met by a fixed grant from Imperial funds; but Sir John Strachey's extension of that system in 1877 was not at once introduced into the Presidency, as its resources had been too severely strained by the great famine of that year. The pressure was, however, only temporary, and in the decade 1872–82 the Provincial revenues—leaving out of account the enhanced grants from Imperial funds—increased by 21 lakhs.

The various contracts, 1882–7.

In the Provincial contract made in 1882–3, the receipts from certain departments, the management of which was more particularly under the control of the Local Government, namely, Excise, Assessed Taxes, Stamps, Registration, and Forests, were divided equally between Imperial and Provincial funds. The income from Land Revenue, Customs, and Salt was reserved for Imperial, and the expenditure on Land Revenue and General Administration was debited to Provincial funds. During the currency of the contract the receipts from the heads thus equally divided increased greatly. Excise profited from the reorganization of the administration of the department; Assessed Taxes from the introduction of the Income-tax Act; Stamps from changes in the system of payment for copies; Registration from the extension of the department; and Forests from the development of the policy of conservation inaugurated by the Forest Act of 1882. This last item was eventually made over entirely to Provincial, instead of being divided. On the other hand, improvements in administration enhanced the expenditure under Land Revenue, and famine occasioned a large outlay.

1887–92.

In the contract of 1887–92 one-fourth of the receipts from Land Revenue and three-fourths of those from Stamps were apportioned to Provincial funds. Excise revenue had greatly expanded, to the considerable benefit of Provincial funds; and three-fourths of it, instead of one-half as before, was now made over to Imperial funds. During the course of the contract it still further increased. Forests and Registration also continued to bring in a large revenue. Expenditure advanced under the heads Law and Justice and Police, in consequence

of improvements in administration; under Irrigation and Civil Public Works, owing to greater activity in those departments; and under Famine, on account of the distress of 1891–2.

1892–7. In the third contract (1892–7) the growing item of Forest revenue, which had previously been Provincial, was equally divided between Imperial and Provincial funds, and one-fourth of the Salt receipts was now apportioned to the latter. During this period the recovery in the seasons and the resettlement of certain Districts enhanced the receipts under Land Revenue, but the rise was largely counterbalanced by an increase in the pay of the revenue inspectors and other administrative improvements. The extension of the tree-tax system (see under Miscellaneous Revenue, p. 105) and an enhancement of the rate of excise duty resulted in still further advances under Excise. On the other hand, expenditure under Law and Justice rose in consequence of the appointment of stationary Sub-magistrates to relieve the overworked *tahsīldārs*, the regrading of the District Munsifs, and other improvements; the charges under Forests, Police, Education, and Medical were similarly increased by the reorganization or strengthening of these departments; and the outlay under Irrigation and Civil Public Works was again enhanced by more than normal expenditure on these two items.

1897–1904. In the contract which began in 1897 only minor changes were made in the existing apportionment of the various items of revenue between Imperial and Provincial funds.

Land Revenue declined owing to the famine of 1897 and the remissions necessitated by the scarcity of 1901, while expenditure under this head rose owing to the outlay on relief works, the reorganization of the *tahsīldārs'* establishments, and the expansion of survey operations. Excise receipts suffered in consequence of bad seasons and plague, and the latter occasioned increased outlay under Medical. During the five years ending 1901–2 plague measures cost 11 lakhs, and the Government of India made special grants to Provincial funds to meet part of this expenditure. The Registration receipts once more advanced, but the charges under Police were raised by the reorganization of the special force on railways. With the help of grants from Imperial funds, the expenditure on Irrigation and Civil Works was maintained at even more than its former level; and large grants, to restore equilibrium in the Provincial accounts, for Education and for other purposes, were made from the same source in 1902–3 and 1903–4.

The system of contracts for limited terms was abolished in 1904; and an arrangement has been entered into for an unspecified term, under which the Local Government will have a more direct interest than before in extending the capabilities of the growing heads of revenue in the Presidency. **Present arrangements.**

Tables X and XA at the end of this article give the Provincial revenue and expenditure under the principal heads. It will be seen that in 1903-4 14,73·50 lakhs of revenue was raised, of which 424·84 lakhs was credited to Provincial funds, and the remainder handed over to Imperial. The largest items among the receipts were Land Revenue (606 lakhs), Salt (195 lakhs), and Excise (177 lakhs), while the chief heads of expenditure were the maintenance of the Revenue, Judicial, and Police departments, and the outlay upon Irrigation and other Public Works.

By immemorial law and custom the ruling power is entitled to a share (*melvāram* or 'superior share') in the produce of the land, the remainder being the ryot's share or *kudivāram*. Subject to the payment of a stated proportion of the produce, the ryot's right of hereditary occupancy of the land for agriculture is complete, and ordinarily he has an unrestricted power of alienation. The state, however, does not always take its dues direct, but has in many cases transferred its rights of collection to intermediaries such as *zamīndārs*, who levy the state share, retain a portion for themselves, and pay the remainder to Government. Historically and theoretically, therefore, the ryot under any system in this Presidency is entitled to the permanent possession of his holding, subject only to the payment of the *melvāram*. Owing, however, to several causes, claims at variance with strict theory have arisen in some of the tracts where the state dues are collected by intermediaries, as will be seen below. **Land revenue.**

The land revenue system consequently has two main divisions: namely, *ryotwāri*, in which the state maintains its direct relations with the ryot; and *zamīndāri* (including *jāgīrs* and *ināms*), or the system of intermediaries and transferees of interest between the state and the cultivator. It is historically an evolution from those systems which existed, in so far as anarchy permitted any system to exist, in the several parts of the Presidency shortly before its occupation by the British. The northern Districts were chiefly held by *zamīndārs*, and in the central and southern Districts large tracts were also occupied by feudal chieftains of various classes; these formed the

intermediaries between the state and the cultivator. But over vast areas there were no such middlemen, save that the state dealt in great measure not with individual ryots but with villages or their headmen under the joint settlement system, and that the revenue collection was frequently farmed out to temporary renters; this method of farming the collections was common also in the *zamīndāris*. Of the ancient estates many have survived as the *zamīndāris* of the present day, but in most instances the feudal chiefs resisted the introduction of the British peace, and were therefore dispossessed. The estates artificially formed to introduce the Bengal permanent settlement mostly failed; a subsequent attempt to create a system of permanent village estates with some form of renters, either joint or individual, likewise failed; and the *ryotwāri* system, suggested to a large extent by former methods on certain areas, gradually absorbed the others. The system as first conceived by Read in Salem at the end of the eighteenth century was modified in both principle and detail on its reintroduction from 1818, after the failure of the *zamīndāri* and renting systems; and the distinctive system of the Presidency is now *ryotwāri*.

Ryotwāri system.

The basis of this system is the division of the whole area into fields by a cadastral survey, each field being valued at a fixed rate per acre and the assessment settled thereon. A holding is one or more of such fields or of their recognized subdivisions. The registered occupant of each field deals directly with Government; and so long as he pays the assessment he is entitled to hold the land for ever and cannot be ejected by Government, though he himself may, in any year, increase or diminish his holding or entirely abandon it; should the land be required for a public purpose, it must be bought at 15 per cent. above its full market value. Inheritance, transfer, mortgage, sale, and lease are without restriction: private improvements involve no addition, either present or future, to the assessment. Waste land may be taken up by any person, under the rules laid down, and once granted to a ryot it is his as long as he pleases.

The present system has been much modified from the original form evolved by Read, Munro, and others. A ryot is now responsible only for his own dues; under Read's system all resident cultivators in a village were jointly bound for any deficit. Remission was expressly excluded from Read's system; it became, however, an immediate necessity, and is now regulated by standing orders. Ryots were nominally allowed to relinquish land at pleasure, but the permission was

hedged round with restrictions which practically negatived the rule and in fact forced undesired land into holdings; relinquishment is now absolutely free. For more than fifty years private improvements, such as wells, involved additional assessment; this is utterly abolished. Valuable crops were formerly charged much higher rates; the assessment is now solely on the land, and the ryot grows what crops he pleases without extra charge. At first the idea of making assessments permanent was tentatively in the minds of some officers; but permanency in the conditions then existing was impossible, and the idea of absolute permanency was excluded from the revised system of 1818, under which the settlements are avowedly temporary, that is, fixed only for a term.

The original basis of the assessment is a share of the crop. Settlement. By ancient Hindu law the sovereign was entitled to a portion (usually one-sixth to one-fourth) of the gross produce, but the practice of many centuries disregarded the theoretical share. Inscriptions of the eleventh century in Tanjore show that the Chola kings took half the produce, a share which was increased to 60 per cent. and upwards in later years. When the British arrived one-half to three-fifths was found to be the generally accepted proportion from irrigated lands, and about two-fifths from unirrigated; on valuable crops the share was smaller, but the cash assessment greater. This enormous demand was further enhanced by the exactions and oppressions of the temporary renters, of the lawless subordinates of the many feudal chiefs, and of the revenue officers, so that the revenue system was mere anarchy, and the ryot could live only by evasion and fraud. The British assumed the correctness of the demand, and though they reduced oppression and confusion they also put some check on evasion. Consequently the assessments were far too high, and, till 1855, the practice was one of incessant and heavy but unsystematic reductions and remissions: prices also fell heavily, so that the assessments were ruining the ryots and restricting or even reducing cultivation.

In the few Districts where there had been a survey and valuation, the records had, by 1855, largely been lost or altered by fraud or otherwise; in many Districts where there had been none, 'the land revenue is based merely on the unchecked statements of the *karnam* [village accountant], and fraud, confusion, and oppression are general' (Government Order of 1855). In view, therefore, to reduce assessments, correct confusion, promote enterprise, and give security to the

ryots, it was decided to survey the whole *ryotwāri* area and to base the assessments on the productive power of the soil, 30 per cent. of the gross being taken as the maximum demand; the grain valuation was to be permanent for fifty years, but the rate for commutation into cash was to alter every seven years according to prices. In 1864 it was finally settled that, to avoid pressure on the poorer lands, the assessment should not be based upon a share of the gross, but should be half the net produce and should be fixed in cash for thirty years: since that date this has been the invariable rule.

Survey operations are described elsewhere. The whole *ryotwāri* and 'minor *inām*' area has now been divided into numbered, demarcated, and mapped fields: boundary disputes are consequently minimized, identification is easy, and transfers, with their registration, simple.

The settlement follows the survey. The officers in charge of the work carefully examine the economic history, resources, climate, and soils of the District, these last being classed as clay, loam, and sand of several sorts, according to productiveness, in the black and red classes. Soils are also divided into 'wet,' i. e. irrigated, and 'dry' or unirrigated, but lands irrigated from purely private sources (e. g. wells) are classed and assessed as 'dry.' Certain food-staples are then selected as representative, and the average out-turn is ascertained by numerous measurements of the ryots' crops on the several soils; the experience of years now enables crop measurements to be dispensed with generally. The out-turns are then valued by a commutation rate something—sometimes much—below the average of the prices of the previous twenty non-famine years; and from this valuation a deduction, varying round 15 per cent., is made for the difference between market and village prices, and another, usually from 20 to 25 per cent. on 'dry' lands but slightly less on 'wet' lands, for vicissitudes of season and unprofitable patches. From these results are deducted cultivation expenses estimated according to soil; and the balance is the net produce, of which a nominal half (usually less) forms the assessment in its several rates, which are then applied to the respective soils. Further allowances, however, are made under the system of classifying villages and sources of irrigation, in which the economic deficiencies, position, &c., of the former and the character of the latter are taken into consideration. Finally, the rates are compared with existing rates and reduced if necessary. For second crops irrigated by Government water on 'wet' land a half or lower charge is

payable, but for third crops or for second unirrigated crops, whether on 'wet' or 'dry' lands, there is no charge.

The particulars of the settlement are entered for each village in a register in the order of the field numbers; and from this the details of each ryot's holding and assessment are transcribed into a personal register, an extract from which forms the *patta* or personal account.

The new settlement has now been introduced into all Districts, but is still incomplete on the West Coast. In three Districts the initial settlement has expired and a resettlement has been made; in others resettlement is in progress or at hand.

Results of settlement.

As already stated, the leading idea of the new settlement was reduction and systematization, but owing to the doubling of prices in the next decade general reduction was unnecessary: on the other hand, notwithstanding this doubling of prices no increase was made in the assessment per acre up to 1898, except in Tanjore. The net effect of the initial settlements in nineteen Districts up to 1898 is that the prior assessments—heavily reduced from those of the early period—were raised from 329·6 to 357·1 lakhs or by 8·4 per cent. But this includes the 8 per cent. increase in area discovered by the survey, while 12 out of the 27·5 lakhs of increase occurred in the rich delta of Tanjore alone. Resettlements completed by 1903 have resulted in a further increase of about 11 lakhs in the rich deltaic Districts of Godāvari and Kistna, and in Trichinopoly, where the initial settlement gave a reduction of 4 lakhs. The rates number forty for 'wet' land and range from Rs. 14 to 12 annas per acre, the average charge being Rs. 5–9, for which Government supplies water; for 'dry' land (including gardens) they number thirty-four, ranging from Rs. 8 to 2 annas per acre: 'dry' rates above Rs. 3 are very rare, and the average assessment is R. 1. Prior to settlement 'wet' rates ran up to Rs. 35 per acre, and garden rates (abolished in 1863, but now levied in South Kanara and Malabar) were several times higher than the 'dry' rates to which they were reduced. The average assessment per occupied area, excluding 'minor *ināms*,' is now Rs. 1·9, compared with Rs. 2·5 in 1855. This decrease is due partly to several reductions, such as that on garden lands, partly to the taking up of inferior soils in the expansion of holdings from 12·5 to 21·6 million acres. But during that period grain prices have doubled, so that while the incidence per acre has decreased by 25 per cent. the pressure has also lessened.

Cesses.

Two cesses (in addition to the irrigation cess and the railway cess already mentioned[1]) are also levied: one, at 1 anna per rupee of revenue ($6\frac{1}{4}$ per cent.), is expended locally in each District on roads, sanitation, and medical services, primary education, &c.; the other, at about 9 pies per rupee ($4\frac{11}{16}$ per cent.), is the village service cess, and is merely a substitution for the dues (*meras*) immemorially paid out of the harvest produce by the ryots to the village officers and servants. It is far less onerous to the ryots than the old *meras*, while the payees obtain a regular income without the numerous disputes and evasions of former days[2].

Ratio of assessment to produce.

The original intention to reduce assessments led to very cautious calculation of out-turns, so that estimates are well below the mark, except perhaps in the lowest grades. Moreover, the valuation assumes that all crops are cheap food-grains only, and takes no cognizance of the vast quantities of far more valuable industrial and orchard produce, while second crops on 'dry' lands, and the numerous fruit trees scattered over the holdings, are not considered; the commutation rates are also lower than the prices generally current. Hence the value of the real gross produce is far above the nominal gross value. Including the West Coast Districts, but excluding all by-products from cattle, &c., the mere crop value in round figures is above 50 crores, while the assessment (including miscellaneous charges) is about 5 crores, or below one-tenth, and includes the whole charge for water supplied by Government to about 6 million acres. The share per acre, however, varies largely according to District, productiveness, &c. The assessment is, nominally, one-half of the net produce; but since, over vast areas, both 'wet' and 'dry' land are sub-leased at a half or larger share of the crop or at from twice to five or more times the assessment, it is clear that the nominal proportion is often a fourth and, on the richer lands, a sixth or even less of the net produce. On the poorest lands, however, which just return expenses, even in normal years, with but a small or moderate profit on stock, the assessment is as high as the land can reasonably bear.

Temporary reductions.

Certain temporary deviations from the strict assessment are admitted in favour of the cultivators: e.g. land covered with jungle or noxious vegetation may be granted free or on progressive rates for twenty years, while land which has lain waste

[1] See above, pp. 51, 52 and 76.

[2] The village service cess was abolished in 1906, and the village establishments are now paid out of general revenues.

for ten years may be granted wholly free for the same term for the purpose of planting orchards and woods; increments at settlement, if considerable, are also introduced gradually.

In settling the assessment, a deduction of about 15 to 25 per cent. is made from the gross out-turn for vicissitudes of season, and this, which is more than equal to the full annual assessment, is held to cover losses in all ordinary seasons. For this reason and because the ryot is entitled in any year to relinquish any part of his holding, the assessment on all unirrigated land in occupation is payable in ordinary years, whether the land be cultivated or not. Remission is given only for waste or for the total or partial loss of crops on such land in exceptionally bad seasons and tracts. In such cases the Collector is authorized to suspend collections, to make general inquiries into the loss of crops, to divide the areas into blocks classed according to their several losses, and to recommend for each block its appropriate percentage remission on all unprotected fields within it (without differentiating between individuals or fields) on an established scale varying from full remission for a crop of one-sixth or less; no remission is given if a half-crop has been obtained. This method enables relief to be rapidly calculated, sanctioned, and proclaimed. On irrigated lands the crop depends on the ability of Government to supply water properly, and Government therefore wholly remits the assessment whenever from failure or excess of water any particular field lies waste or loses its crop; if crops requiring little or no irrigation are necessarily grown instead of rice, which is the standard, a lower assessment is charged. Remissions.

Since a ryot is entitled to add to his holding at pleasure, either from waste or by transfer from others, or to decrease or abandon it, and since one-fifth of the holdings are irrigated and liable to failure of the water-supply, it is necessary, for these and other purposes, to hold an annual settlement of accounts (*jamabandi*) in order to ascertain and record any changes in the holdings and any remissions under the rules. This *jamabandi* in no way alters the field assessments and has absolutely no connexion with the thirty years' settlement. *Jamabandi.*

The dues as finally determined at the *jamabandi* form the settled demand for the year, and are payable by the ryots in several instalments, usually four of equal amounts. The principle aimed at in fixing the dates of these instalments is that at least the major portion of a ryot's crops should be marketable before he is called on to pay anything, and that he should not have to borrow for such purpose. Collection.

If dues are not paid punctually, Government is entitled to recover by selling the land or movables of the defaulter. The processes are lengthy and cautious. Personal imprisonment (civil), of males only, is allowable in case of fraud or wilful withholding of dues, and for short terms: no cases, however, have been known for many years, and the provision is a dead letter and unknown to the public. Interest on arrears is not chargeable till after the end of the revenue year (*fasli*), and cultivating necessaries (plough cattle and implements), in due proportion, are exempt from distraint. Before the date of the present law (Madras Act II of 1864) coercive process was wholly arbitrary and often oppressive. Since law has abolished personal oppression and introduced routine, there has been a statistical but not a real development of coercive processes, while actual coercion, as measured by sales, has considerably decreased in the last fifteen years, notwithstanding the great increase in the number of holdings and of ryots. The rules for recovery apply to defaulters under all classes of tenure.

Distribution of land. The distribution of the land among the several classes, the character of the people, and the comparative absence of professional money-lenders of an alien class, owing to which the debt of the ryots is mostly incurred to other ryots, have rendered unnecessary any legislation or measures directed against the acquisition of land by non-agricultural classes.

The administration of the land revenue system is based upon a body of standing orders sanctioned by Government, which are modified and added to from time to time, and are published for general information in a handy form as well as in the District *Gazettes*, which latter also contain local orders approved by the Board of Revenue.

Zamīndāris. Prior to the British assumption, the position of the *zamīndārs*, or holders of estates under the Crown, was wholly uncertain (see the preamble to Regulation XXV of 1802); and in order to fix their position and limit the demands upon them, so that their demands upon the ryots might be equally fixed and limited, the permanent settlement system was introduced. The *zamīndārs* found in existence were confirmed in their estates and very many new ones were artificially formed; to all, permanent *sanads* (title-deeds) were issued. By 1820 most of the newly created and some of the previous holders had failed to pay their dues or keep their engagements and were sold up, their land being incorporated in the *ryotwāri* area. Hence the existing estates represent institutions of various classes, from ancient principalities and baronies to mere modern fiscal

creations. Whatever their history, however, their rights are similar; and so long as they pay the *peshkash* (permanent assessment) they are secure in their estates as against Government, and are entitled to levy the demand due from the cultivators.

The position of the cultivators in *zamīndāri* estates is not everywhere clear. History shows that in this Presidency the cultivator in general had *kudivāram* (ryot's share) rights, and was bound to pay only *melvāram* (superior share) to the state or its representative. Past anarchy and the misconceptions of later days frequently led, however, to illegal exactions and oppressions, whereby the *kudivāram* or occupancy rights were trenched upon and in some estates claims were set up inconsistent with such rights. These claims are opposed to the general history of a Madras cultivator and to his position in most estates, where he is fixed upon the land precisely like a *ryotwāri* cultivator.

Besides the peasant land (*ayan* or *jirāyati*) the *zamīndārs* usually have home farm (*pannai*) land, in which they possess complete rights and can consequently demand any rents they can obtain.

Owing to their position as representatives of the state, *zamindārs*, and also *ināmdārs*, &c., have large powers of collection, including the distraint and sale of movables and the sale of the ryots' interest in the land. The present rent law is Madras Act VIII of 1865, but its imperfections and deficiencies are admitted, and a new law is under consideration.

The *zamindāris* cover a total area of 26·3 million acres, or 29 per cent. of the Presidency area, with a population of 7,554,000, exclusive of those in the Agency tracts. The cultivated area is not known, but, as in the *ryotwāri* tracts, is probably about an acre per head of the population; the rentals are estimated at between three and four times the revenue paid to Government, which is 50 lakhs.

Ināms, other than mere grants of the assessment, are lands held, whether in *ryotwāri* or *zamīndāri* tracts, either revenue free or upon a reduced assessment (quit-rent). They are of many kinds and result from grants made by former governments for religion, charity, public service, military and other rewards, and so forth. Their total area is 7·75 million acres, contained in about 444,000 holdings with 840,000 sharers. Of these, 3·52 million acres are held as 'whole *inām*' villages, which constitute separate estates with a population of 2·4 millions. The quit-rent due (7·4 lakhs) is about 16 per cent. *Ināms.*

of the rental paid by the cultivators. These villages are held in perpetuity, subject only to the payment of the quit-rent, which is fixed for ever. The remaining 4·23 million acres are held in small areas ('minor *ināms*') scattered throughout the villages. They are enjoyed by village officers, servants, artisans, &c., as part of their emoluments, and by various other persons or institutions. Most of the personal and village service *ināms* have now been enfranchised : that is, the tenure has been freed from the conditions which originally limited it, and the lands have been made over in full property to the holders subject to a quit-rent. The quit-rent, which is fixed for ever, averages 8 annas; so that the holders enjoy a permanent light assessment. Religious and charitable *ināms* are held on condition of the performance of the services which they were originally intended to secure, and are liable to resumption on default.

The cultivated areas of all 'minor *ināms*' and of six-sevenths of the 'whole *inām*' villages are included in the detailed statistics of cultivation. The total amount of revenue relinquished by the state on these areas approaches 100 lakhs. The 'whole *inām*' villages pay 7·4 lakhs, and the 'minor *ināms*' 23 lakhs, as quit-rent.

Miscellaneous revenue.

After Land Revenue the next most considerable item in the revenue of the Government is derived from Salt, Excise or Abkāri (intoxicating liquors and drugs), and Customs. The department which deals with these three matters is administered by a small army of 11,000 men, controlled by the Separate Revenue branch of the Board of Revenue. This branch also manages two other important items of Miscellaneous Revenue: namely, Stamps and Income Tax.

Opium.

In Madras the receipts from opium do not occupy so important a position as in some other Provinces. The cultivation of the poppy is prohibited, and the drug is supplied from Mālwā, through the Bombay Opium department, to two central storehouses, one in Madras and one at Cocanāda in Godāvari District. The opium revenue is derived partly from an excise duty of Rs. 5 per lb., and partly from fees and rents for the right of wholesale and retail sale. None but approved persons are allowed to be wholesale vendors, and the drug may be sold retail only at certain shops, the number of which is fixed for each locality. The right of retail sale is annually put up to auction. More than 43 per cent. of the opium brought into the Province is consumed in a single District, Godāvari. It is much used as a prophylactic against fever in the hill tracts of this and the adjoining Districts of Vizagapatam and Ganjām.

The opium revenue averaged 6½ lakhs during the decade 1881–90 and 7½ lakhs during the decade 1891–1900. In 1903–4 it was 8½ lakhs.

Salt revenue administration.

The administration of the salt revenue is regulated by the provisions of the Madras Salt Act (IV of 1889), under which the manufacture and sale of salt is a Government monopoly. All the salt is made under Government supervision in factories along the shore of the Bay of Bengal, by running sea-water into shallow 'salt-pans' formed by levelling and embanking the ground, and leaving it to evaporate. There are two main systems of manufacture, known as the monopoly and the excise systems. Under the former, salt is manufactured for sale to Government only, and is disposed of by it to the trade. Under the latter, manufacture is for general sale, and the manufacturers are allowed to make such arrangements as they please for the disposal of their salt when once they have paid the duty on it.

Duty on salt.

The duty on all salt, Government or excise, is now (1906) Rs. 1–8 per maund of 82$\frac{2}{7}$ lb., and is ordinarily payable before the salt is removed from the factory. In addition to the duty, a small charge (usually 3 annas a maund) is made to cover the cost of the manufacture of Government salt. Salt issued for the bona fide curing of fish, to the French Government, or for use in manufactures, is duty-free, only the approximate cost price being charged. Fish-curing is carried on in special yards under Government supervision and is an important industry. In 1903–4 about 14,000 tons of fish were brought to the yards on the east coast and 39,000 tons to those on the west coast. Special precautions are taken and establishments maintained for suppressing the clandestine manufacture of earth-salt from saline efflorescences, the removal of spontaneous salt, and the smuggling of salt across the frontiers. These precautions are effective, as the consumption of duty-paid salt per head of the population is greater in Madras than in any other Province.

Statistics of manufacture.

The quantity of salt manufactured averaged 267,000 tons during the decade 1881–90 and 306,000 tons during the decade 1891–1900. In 1903 it was 245,000 tons.

Imported salt.

The quantity of salt imported duty-paid and duty-bearing from within India or from other countries averaged 36,000 tons during the decade 1881–90 and 44,000 tons during the decade 1891–1900. In 1903–4 the quantity was 38,000 tons. Almost all this comes from Bombay. In the West Coast Districts there has been no manufacture of salt since 1884, and the whole of the supply is imported, chiefly from Bombay.

Bombay salt is also consumed largely in the Deccan Districts and Coimbatore, its lightness (salt is sold wholesale by weight but retail by measure) allowing it to compete successfully with Madras salt. The opening of extensions of the Southern Mahratta and Mysore State Railways has enabled it to compete with Madras salt also in parts of Mysore. The imports from Europe are insignificant, consisting only of refined salt for the consumption of Europeans.

Revenue and consumption.

The gross revenue from salt, exclusive of miscellaneous receipts, averaged 149 lakhs during the decade 1881–90 and 181 lakhs during the decade 1891–1900. In 1903–4 it was 195 lakhs. The consumption averaged 237,000 tons during the decade 1881–90 and 276,000 tons during the decade 1891–1900. In 1903–4 it was 307,000 tons. These figures include the minor Native States of Pudukkottai, Banganapalle, and Sandūr. The consumption of salt per head of the population in 1881–2, 1891–2, and 1903–4 was 12·49, 15·18, and 17·79 lb. respectively.

Excise (*ābkāri*) revenue.

The principal articles from which the excise (*ābkāri*) revenue is derived are arrack, toddy, foreign liquor, and intoxicating drugs prepared from the hemp plant (*Cannabis sativa*). The law relating to the subject is contained in Madras Act I of 1886.

Arrack.

The revenue from arrack, or country spirit, a species of rum ordinarily distilled from cane or palm jaggery[1], or from the molasses obtained in the process of manufacturing refined sugar from jaggery, consists partly of a fixed duty (now for the greater part of the Presidency Rs. 4–6–0) on every gallon of proof strength issued from distilleries, and partly of fees for the privilege of sale. Distillation is permitted only in large central distilleries, owned by private individuals or firms, to each of which the contract for the wholesale supply of spirits to one or more Districts is assigned. The price per gallon, and the strengths (generally 20°, 30° and 60° under proof) at which spirits may be issued, are specified in the licence granted to the distiller. Distilleries and breweries are supervised by an officer with experience in the English Inland Revenue department, aided by a staff specially trained under him in English methods. This officer also superintends a laboratory, in which analyses required by the Salt and Excise department are carried out. Retail sale of arrack is allowed only in authorized shops, the number of which is fixed for each locality. The right of

[1] Coarse brown (or almost black) sugar made by boiling the juice of the sugar-cane or palm over a slow fire.

sale in these is put up to auction, each shop being usually sold separately, every year. For consumption in the two West Coast Districts, spirit is distilled directly from toddy in one or more distilleries belonging to Government, which are leased out to those who have contracted for the wholesale supply of the Districts. This spirit is excised at the same strengths as country spirit manufactured from jaggery or molasses. In the hill tracts of Ganjām, Vizagapatam, and Godāvari, spirit is distilled from the flower of the *mahuā* tree (*Bassia latifolia*), the right of manufacture and sale being sold by specified areas called 'farms' in Ganjām and Godāvari, and by separate shops in Vizagapatam. The gross revenue from arrack during the two decades 1881-90 and 1891-1900 averaged 46 lakhs and 56½ lakhs respectively, the increase being due mainly to improvements in the system of administration. In 1903-4 the revenue was 72 lakhs.

Toddy. Toddy is the fermented sap of the coco-nut, palmyra, date, sago (*Caryota urens*), or *dadasal* (*Arenga Wightii*) palms. It is obtained by cutting the end off the flower-spathe of the palm (or by making an incision in the bark) and hanging a pot below to catch the sap as it exudes. When first drawn the sap is not intoxicating, and is known as 'sweet toddy,' but it quickly ferments. The toddy revenue is derived partly from a tax on each tree tapped in this manner, and partly from fees for the right of retail sale. No sale is allowed except in licensed shops, the number of which is fixed, as in the case of arrack shops, for each locality, and the privilege of retail sale in these is sold annually by auction. Domestic manufacture is, however, allowed to a limited extent. In Godāvari, Madras, South Kanara, and Malabar Districts the drawing of sweet or unfermented toddy for the manufacture of jaggery, or for use as a beverage, is permitted under licences issued free. Elsewhere this is allowed without any restriction. The gross revenue from toddy averaged 31 lakhs during the decade 1881-90 and 65¾ lakhs during 1891-1900. In 1903-4 it amounted to 88 lakhs. The gradual extension of the tree-tax system, under which the revenue is derived mainly from the tax on each tree tapped and less from the sale of shops, accounts for the steady increase in the figures.

Foreign liquor. 'Foreign liquor,' for excise purposes, includes all liquors imported from outside British India, as well as liquors made in the Presidency which have been excised at the full tariff rate of import duty. It also includes beer (whether brewed in or out of India), caoutchoucined or methylated spirits, and rectified

spirits. For the sale of foreign liquor for consumption on the premises tavern licences are granted, the fees for which are determined by auction; but wholesale licences, retail licences for consumption off the premises, for refreshment rooms, bars, &c., and all other kinds of licences are granted at fixed rates. The excise duty on foreign spirit is Rs. 6 per proof gallon, and on beer 1 anna per gallon. Caoutchoucined or methylated spirits, excised on payment of a duty of 5 per cent. *ad valorem*, may not be sold in taverns or other shops licensed for the sale of potable foreign liquors, but special licences for both sale and use are granted free of charge to approved persons. Licences for the sale of rectified spirits excised at the tariff rate of Rs. 6 per proof gallon are issued to chemists and druggists on payment of fixed fees. The gross revenue from foreign liquor (excluding customs) averaged 4 lakhs during the decade 1881–90 and $3\frac{1}{2}$ lakhs during 1891–1900. In 1903–4 it was 4 lakhs.

Hemp drugs.

Cultivation of the narcotic hemp plant (*Cannabis sativa*) is allowed only in the Javādi Hills in North Arcot and in one or two villages in the Bāpatla *tāluk* of Guntūr. Licences for cultivation are issued free, the licensees being bound to bring all their produce to storehouses established by Government, one in each tract. As in the case of opium, consumption is highest in hilly and malarious tracts. Licensed vendors must obtain their drugs from holders of stocks at Government storehouses, upon payment of duty at the rate of Rs. 4[1] per seer (2 lb.) of *gānja* and 8 annas per seer of *bhang*. The gross revenue during the decade 1891–1900 averaged Rs. 90,000, and in 1903–4 it was 3 lakhs. No revenue was realized from this source before 1889, and it was not until 1897 that cultivation, manufacture, transport, &c., were brought under control.

Total *ābkāri* revenue.

The total Excise (*ābkāri* and opium) revenue, including miscellaneous receipts but excluding customs duty on imported liquor, averaged $88\frac{1}{4}$ lakhs during the decade 1881–90 and 135 lakhs during 1891–1900. In 1903–4 it was 177 lakhs. The incidence of this revenue per head of the population for 1881, 1891, and 1903–4 works out to 3 annas, 5 annas 1 pie, and 7 annas 5 pies respectively.

Government policy in excise matters.

Intoxicants are drunk only by certain castes and classes of the people, but if these cannot get licit liquor they will obtain it illicitly. The efforts of Government are therefore directed to providing reasonable facilities for obtaining licit liquor everywhere, the price being raised as high as possible without forcing the public to illicit practices. To this end contractors

[1] Raised to Rs. 5 in 1906.

are compelled to open wholesale dépôts for the supply of country spirit at carefully selected centres, and are not permitted to concentrate their efforts upon populous localities where the highest profits can be obtained. The privilege of manufacture is separated from that of sale except in a few outlying areas, and endeavours are made to restrict consumption by raising taxation. The consumption of country spirits has fallen from 1,305,000 proof gallons in 1891–2 to 1,215,000 proof gallons in 1903–4, the number of shops having been reduced from 34,000 in 1881–2 to 32,000 in 1891–2 and 29,000 in 1903–4. There is no strong native public opinion on the question of temperance, and public representations on subjects connected with the supply of intoxicants are rare. Statistics show that natives who can afford it are consuming imported malt liquor and spirits in preference to country spirit.

The Customs revenue is derived from duties on imports from outside British India brought in by land or sea. The only land customs are those on goods imported from the French Possessions. The arrangements in force with the various Native States concerning customs and excise duties are described in the articles regarding them. Customs.

Of the sea customs collections, 80 per cent. is derived from import duties, the only exports which are taxed being rice and paddy (unhusked rice). The collections during the decades ending 1889–90 and 1899–1900 averaged 14 lakhs and 29 lakhs respectively, and in 1903–4 they amounted to 54 lakhs. The chief items in this last year were spirits (10½ lakhs), petroleum (7 lakhs), and cotton manufactures (7½ lakhs). The Collector of Sea Customs, Madras, is the chief customs officer for all the ports in the Presidency, controlling routine customs matters and being the referee on all points of practice and procedure; but the upper officers of the Salt, Abkāri, and Customs department are responsible for the proper conduct of customs work within their charges.

The following figures give the revenue from stamps in recent years, in lakhs of rupees:— Stamp revenue.

	Judicial.	Non-judicial.
Average for 1881–90	35¾	20
" 1891–1900	48¾	25½
1903–4	53	31¾

Plentiful harvests usually cause an increase in the sale of both judicial and non-judicial stamps, for the luxury of litigation is then possible and business of all kinds is brisk. Bad

seasons reduce the demand for judicial stamps by discouraging litigation, but increase the sale of non-judicial stamps by the necessity which they occasion for raising loans. This latter increase, however, usually dies away rapidly if the state of the season becomes acute, for credit then shrinks and loans are with difficulty obtainable.

Income tax.

The net revenue from the income tax between 1886–7 and 1889–90 averaged 16·5 lakhs. Between 1890–1 and 1899–1900 it averaged 23·7 lakhs. In 1903–4 it was 26 lakhs, the incidence of taxation was 1 anna per head, and there was one assessee per thousand of the population.

Local self-government.

Local self-government is no new thing in Madras, but dates from the middle of last century. It now plays an important part in the administration of the country. The great majority of the roads, schools, hospitals, dispensaries, markets, arrangements for sanitation and vaccination, and public rest-houses for Europeans and natives are under the immediate charge or control of local bodies, and are financed from the funds they administer, Government prescribing the policy which shall be followed in each of these branches of work, and exercising a close supervision, through Collectors of Districts and the officers of the Educational, Medical, and other departments, and by means of a special branch (Local and Municipal) of the Secretariat.

Local boards.

All the larger towns are governed by the municipal councils referred to below. In the rural areas outside them, local affairs are managed by local boards. These latter are of two kinds, *tāluk* boards and District boards. The *tāluk* boards are usually in charge of areas conterminous with the revenue subdivisions of the District, and the divisional officers are their presidents. They are subordinate to the District boards, which control local affairs throughout the whole of each District, and of which the Collectors are the presidents.

Villages which are too small to be constituted municipalities, but are large enough to require some measure of sanitation, are formed into Unions governed by bodies called *panchāyats*, which are controlled by the *tāluk* boards, and have power to levy a house tax and to spend it on sanitary and other needs.

Their history.

Cesses for the up-keep of local roads were collected as long ago as 1854. Mr. Edward Maltby, Collector of South Arcot, suggested in 1853 the levy of a cess of 1 anna per *kāni* (1·32 acre) to be expended on roads, and his proposal was approved and introduced into several Districts. The Madras Road Cess

Act (III of 1866) raised the cess to 6 pies in every rupee of the land revenue. In 1863 the Madras Education Act authorized the collection of a voluntary cess for educational purposes; but the enactment was a failure, and in 1871 the Madras Local Funds Act was introduced, which authorized the levy of a single rate not exceeding 1 anna in the rupee to provide for roads, education, and other public objects, and established the first local boards. The law which now governs operations is the Madras Local Boards Act (V of 1884).

Their constitution.

On March 31, 1904, there were 21 District boards (or one[1] in each District excluding Madras City, which has a municipal corporation), 80 *tāluk* boards, and 379 *panchāyats*. Of the 657 members of the District boards, 307 were elected by the *tāluk* boards. The remainder, and all the members of the *tāluk* boards and *panchāyats*, were either *ex officio* members or were appointed by Government.

Their receipts and expenditure.

Statistics of the total receipts and expenditure of all the local boards are given in Table XI at the end of this article. By far the largest source of income is the cess on land. The chief item of expenditure is roads and buildings, and each District board employs an engineer, known as the Local Fund Engineer, to supervise this part of its work. The next heaviest items of outlay are the grants towards medical and educational needs. In times of scarcity the boards are required to assist the Government in maintaining relief works.

Development of their work.

Since the boards were originated, the development of the various branches of their work has been very striking, as shown below:—

	1872-3.	1903-4.
Mileage of roads maintained . .	15,759	22,015
Expenditure on them	Rs. 17,09,874	Rs. 26,66,726
Hospitals and dispensaries maintained	93	350
Patients treated in them . . .	427,179	3,032,608
Persons vaccinated	326,466	1,073,028
Schools maintained	323	2,347
Pupils attending them . . .	10,631	121,172

The latest direction in which some of the District boards are employing their revenues is the construction of local railways. The Tanjore District board has constructed 99 miles of metre-gauge line at a cost of 40½ lakhs. The section

[1] A separate District board (Koraput) for a part of the large District of Vizagapatam was constituted in 1905.

which is open is worked by the South Indian Railway under an agreement with the board, and pays over 4½ per cent. on its cost. Other boards are contemplating the construction of similar lines.

Municipal councils. Their history.

The history of municipal action in MADRAS CITY is referred to in the article on the town. Outside it, municipal administration dates back to 1850, in which year the first Towns Improvement Act was passed for the whole of India. This, however, could be extended only to such towns as desired it, and very few showed a disposition to accept the power it offered them to tax themselves. It was followed by the Madras Towns Improvement Act, 1865, which established municipal councils for the first time. Of the 60 municipalities now in existence, 43 were constituted under this Act. The Towns Improvement Act of 1871, which was the next municipal enactment, relieved the councils of the charge on account of police, but included education, lighting, sanitation, vaccination, and the registration of births and deaths among the objects to which the proceeds of taxation should be devoted. A Commission appointed at the instance of Lord Ripon's Government recommended an increase in the number of municipalities, an extension of the elective franchise, the appointment of non-official chairmen, and other developments of the principle of self-government; and the result was the existing Madras District Municipalities Act (IV of 1884). This has recently been amended by Madras Act III of 1897, under which the councils have received increased powers of taxation to enable them to finance comprehensive schemes of water-supply and drainage.

Their constitution.

On March 31, 1904, the 60 municipal councils consisted of 944 members, of whom 426 were nominated by Government, 450 were elected by the ratepayers, and the remaining 68 were *ex officio* members. Of the total number of members, 208 were officials and 736 non-officials, while by race 172 were Europeans and 772 were natives of the country. In 38 of the councils the chairman was a non-official.

Their population and finances.

Of the 60 municipal towns, the population of two, namely, Madura and Trichinopoly, exceeded 100,000 in 1901; that of three—Anantapur, Kodaikānal, and Coonoor—was less than 10,000; and that of the remainder ranged between 10,067 and 76,868. In 1903-4 the total income of all the municipalities from taxation was 16 lakhs, and from tolls 4 lakhs, and the population included in them was 1,915,000; so that the incidence of taxation per head was Rs. 1-0-7 including tolls,

and 13 annas 1 pie excluding tolls. The statistics in Table XII at the end of this article show the chief sources of receipts and the main items of expenditure.

Extension of their work.

Since 1885–6, the first year in which the Act of 1884 came into effective operation, the extension of municipal action has been rapid, as shown by the following figures :—

	1885-6.	1903-4.
	Rs.	Rs.
Total receipts from taxation . . .	10,23,328	19,82,840
Expenditure on public works . . .	2,22,765	5,73,528
,, on education . . .	2,11,173	3,90,223
,, on sanitation . . .	3,89,012	9,49,534

The second of these items excludes the outlay on a number of comprehensive schemes of water-supply and drainage which have usually been carried out by the Sanitary Engineer to Government.

Water-supply and drainage schemes.

Since 1890 water-supply schemes have been introduced in the municipalities of Adoni, Cocanāda, Conjeeveram, Cuddapah, Kurnool, Madura, Trichinopoly, Tanjore, Dindigul, Ootacamund, Tirupati, and Vizagapatam, and drainage schemes in Coonoor, Kumbakonam, and Ootacamund. The total capital cost of these up to the end of 1903–4 was 43 lakhs, of which Government made a free grant to the councils of 20 lakhs and advanced them 19 lakhs on loan. These loans are granted at a fixed rate of interest, the municipalities making annual payments to Government sufficient to recoup both interest and principal in thirty years. A number of additional schemes are under consideration[1].

Public Works. Organization of the department.

The Public Works Secretariat, as has already been mentioned, consists of three branches—Roads and Buildings, Irrigation, and Railway—each under its own secretary. While, however, the administrative staff of the Railway branch is distinct from the rest of the department, the staffs of the other two branches, contrary to the practice obtaining in most other Provinces, form one body and are employed upon roads, buildings, or irrigation as need arises. This part of the department consists of two distinct divisions, the Engineer and the Subordinate establishment, of which the former has been usually recruited from the Royal Engineering College at Cooper's Hill, and the latter from institutions in India. In addition to these and separate from them is an Accounts department which, like the Accountant-General's office, occupies a position in some

[1] Water-works were opened in Guntūr municipality in 1905.

respects independent of the Local Government and under the direct control of the Government of India. The head of the whole department is the Chief Engineer, who is secretary in the Roads and Buildings branch, and in charge of the posting, promotion, &c., of the executive establishment of all kinds; while irrigation works are under the immediate control of the Chief Engineer for Irrigation, who is secretary in the Irrigation branch.

For administrative purposes, the Presidency is divided into six Public Works circles, each under a Superintending Engineer who deals with all executive questions arising within it, whether they are connected with roads, buildings, or irrigation. The circles are again split up into divisions, each under an Executive Engineer, and subdivisions under Assistant Engineers or members of the upper Subordinate establishment referred to above. These divisions are not always conterminous with Collectorates, but are arranged according to the importance of the work in the various areas. Each of the three irrigated deltas, for example, contains two divisions, each under an Executive Engineer, while the districts of South Kanara and Malabar form together a single division under the Executive Engineer at Calicut. Similarly the Districts of Bellary and Anantapur form together a single division with head-quarters at Bellary. Workshops belonging to the department are maintained at Madras, Bezwāda, and Dowlaishweram.

Its functions.

The department of Public Works plans and executes engineering works for all departments of both the Imperial and the Provincial Governments, and also occasionally for local bodies and for estates under the Court of Wards. Ever since the introduction of Provincial finance its expenditure has steadily increased, but changes in the rules apportioning this outlay between Imperial and Provincial funds render it difficult to exhibit the advance statistically.

Roads and buildings. Chief recent works.

In the Roads and Buildings branch the chief roads made during the past twenty years have been the Pottangi-Koraput and Pottangi *ghāt* roads in Vizagapatam District, the Vayittiri-Gūdalūr road in the Wynaad, the Bodināyakkanūr-Kottagudi road in Madura, the *ghāt* road to Yercaud on the Shevaroy Hills, and the roads opening out the coffee plantations on the Anaimalai Hills. The department usually carries out only such roads as require exceptional professional skill, others being executed by the District boards already referred to.

The principal bridges built during the same period are those over the Ponnaiyār and the Gadilam at Cuddalore, and over

the Vaigai at Madura, the Mahāsingi iron girder-bridge in Ganjām, and the causeway over the Pālār river in North Arcot.

Among the buildings erected during the same period are—in Madras City, the Post and Telegraph offices, the High Court, the Law College, the Victoria Students' Hostel, the Connemara Library, the Ophthalmic Hospital, and the Victoria Hospital for caste and *gosha* (or *parda*) women; and, outside Madras City—the Government House, Ootacamund; Collectors' offices at Cuddalore, Anantapur, Cuddapah, and Calicut; the District Court at Calicut, the District jail and public offices at Tanjore, the pier at Tuticorin, and ten lighthouses. Designs for important buildings are prepared by the Consulting Architect to Government, who is an officer of the department.

Irrigation. Chief recent works.

In the Irrigation branch, the undertakings carried out from Imperial funds since 1882–3 have been the great PERIYĀR PROJECT in Madura, the RUSHIKULYA project in Ganjām, and the Barūr tank project in Salem; and from Provincial funds, the Sagileru project in Cuddapah, and the Muneru and Dondapād tank projects, both in Kistna. Besides the expenditure on these new works, more than 32 lakhs was laid out during the decade ending 1902–3 in improving the larger irrigation schemes known as 'major works,' and a considerable amount on certain works of special interest connected with the three dams which control the irrigation of the Cauvery delta.

Works now under construction.

Among works now (1906) in course of execution are the Chapād and Vemula tank projects in Cuddapah, the Ponnalūr, Hājipuram, and Yerūr tank projects in Nellore, and the Atmakūr and Jangamaheswarapuram tank projects in Kistna. Until lately it was accepted as a fundamental principle that no irrigation work should be undertaken which did not promise a direct minimum return per cent. on its capital outlay; and this barred the execution of a number of schemes which, though they would have provided valuable protection against famine, were too costly to return the minimum interest demanded. Recently, however, an appreciation of the immense indirect benefits accruing from large irrigation schemes has led to a relaxation of this principle, and a number of schemes which were formerly unfavourably regarded are now being investigated. Chief among these are the project for leading the surplus water of the TUNGABHADRA river in Bellary District into the PENNER, and the proposal to provide reservoirs on the BHAVĀNI and the KISTNA to supplement the supply available in the deltas of the Cauvery and the Kistna respectively.

The total strength of the British and Native army stationed within the Presidency at the end of 1904 was—British, 2,731; Native, 5,870; total, 8,601. The Presidency is garrisoned by the Secunderābād division, which is for the present directly under the Commander-in-Chief, the former Madras command having been abolished in October, 1904. The military stations occupied in 1905 were Bellary, Calicut, Cannanore, Madras (Fort St. George and Perambūr), Malappuram, Ootacamund, Pallāvaram, St. Thomas's Mount, Trichinopoly, Vizianagram, and Wellington. Madras has an arsenal, a gun-carriage factory (recently closed), and harness and saddlery workshops; and there is a cordite factory at Wellington.

Volunteers.

In addition to the Southern Mahratta Railway Rifles, whose head-quarters are outside the Presidency (at Hubli in Bombay), there are Volunteer Corps at Madras, Ootacamund, Negapatam, Waltair, Calicut, and Yercaud. Their total strength in 1904 was 4,531, of whom 279 were artillery and 45 mounted rifles.

Troops in Native States.

The Native States of Travancore, Cochin, and Pudukkottai each maintain a small armed force. The Nāyar Brigade in the first of these, which is officered from the Indian Army, numbers 1,442 men, and the Mahārājā has also a mounted bodyguard of 61 men. The forces in the two other States aggregate 325 and 129 respectively.

Police. History of the force.

In the days of native rule in Southern India the only police organization was the ancient *kāval* (watch) system. Under this *talaiyāris* (watchmen) in each village, subordinate to *kāvalgārs* (head-watchmen) in charge of groups of villages, who in their turn were usually controlled by the *poligārs* or local chieftains, undertook, in consideration of payments from the people within their charges, to protect property and make good any loss from theft. Their remuneration nominally consisted of a share of the crops harvested, fees from non-agriculturists such as traders and artisans, and the proceeds of land granted to the *kāvalgārs* free of rent. But, considerable as these revenues often were, the system usually degenerated into one of organized blackmail, and the watchmen moreover harassed the people and helped themselves to the property they were paid to protect.

When the Company acquired the country, it relieved the *poligārs* and head-watchmen of their duties, interdicting their exactions and resuming their free-grant lands, but retained the village watchmen on fixed emoluments. By Regulation XI of 1816, these last were placed under the authority of the village headmen and the officers of the Revenue department.

The present police force, which is independent of the Revenue

officials, was organized in 1859 by Mr. (afterwards Sir William) Robinson. The village watchmen (usually known as *talaiyāris*) were, however, retained on the old footing, and their co-operation with the regular police is still a valuable part of the system.

Strength, recruitment, and training of the police. In 1904 there was one regular policeman to every 6 square miles of area and to every 1,558 of the population, and one village policeman to the same number of square miles and to every 1,612 persons. Details are given in Table XIII at the end of this article. The head of the department is the Inspector-General, who is assisted by three Deputy-Inspectors-General. The Madras City Police work under a Commissioner and are distinct from those in the Districts. Each District is in charge of a District Superintendent, sometimes aided by one or more Assistant Superintendents. These officers were formerly appointed by nomination, but are now mostly chosen by competitive examination in England[1]. Inspectors, the next grade, are selected by the Inspector-General, while constables are recruited by District and Assistant Superintendents. Educated natives compete readily for Inspectors' posts, the salaries of which have been from time to time increased, but the pay of the lower grades is insufficient to attract them. Assistant Superintendents and Inspectors are appointed on probation, and are required to attend the Police Training School at Vellore for a certain period. Constables have to go through a six months' training as recruits at the District head-quarters, and are not promoted to be head-constables until they have passed a certain test. Candidates selected by District Superintendents are trained for this test at the Vellore School for six months. The village police undergo no training, their duties being confined to patrolling, surveillance of strangers in their villages, executing criminal processes, supplying the regular police with information, and, in the case of the *ghāt talaiyāris*, watching the wilder *ghāts* and passes where robbery is easiest.

Detection, arming, &c. Detection of crime is in the hands of the ordinary police, there being no special detective staff. Since 1894 finger-impressions of convicted persons have been recorded and classified in the Inspector-General's office, and the system has become a valuable aid in tracing the antecedents of suspected persons.

Most of the police are armed with Snider carbines with the rifling bored out, but these weapons are kept in the stations

[1] A new grade of Deputy-Superintendents, recruited solely from the subordinate native officers, was formed in 1905.

and not usually carried by men on ordinary duty. The reserves (bodies of picked men retained at the District head-quarters) are armed in the wilder Districts with the long Snider rifle, as are all punitive police, that is, special forces temporarily quartered in areas where serious riots have occurred, and paid for by a special tax on the inhabitants.

Railway police.

The extension of railways in recent years has given the professional criminal so great an advantage that in 1895 a special force of Railway police was organized. This force is required to co-operate with the District police, and is divided into a stationary platform staff which preserves order within railway limits, and a detective and travelling staff. The railway companies contribute towards its maintenance.

Criminal classes.

The Criminal Tribes Act has not been brought into force anywhere in the Presidency, but the many wandering gangs of persons of the criminal castes are specially watched by the police.

Statistics of cognizable crime (that is, offences for which the police may arrest without a magistrate's warrant) are given below:—

Number of cases	Average, 1897–1901.	1904.
Reported	161,312	170,134
Decided in the courts	137,690	147,438
Ending in acquittal or discharge	7,062	7,692
Ending in conviction	122,403	132,158

Jails.

The native governments had no regular prisons and it devolved upon the British to provide them. The larger jails were originally in the charge of the several District Judges, but in 1855 the first Inspector-General of Prisons was appointed.

The three classes of jails.

The existing jails are of three classes: namely, Central jails under whole-time Superintendents, with accommodation on an average for 1,000 prisoners each; the smaller District jails, as a rule in charge of District Medical and Sanitary officers; and subsidiary jails, under the immediate control of the subordinate magistracy, in which only prisoners sentenced to terms of a month or less are usually confined. It has been found to conduce to economy and improved administration to close some of the District jails and proportionately enlarge the Central jails. Prisoners from the Agency tracts in Ganjām suffer so seriously from malaria if brought down to the coast that a special prison has been built for them at Russellkonda near the hills, of which the divisional officer is in charge.

The average daily population in all the jails in 1904 was 10,976, and the cost of the department amounted to 7 lakhs. Detailed statistics are given in Table XIV.

There is a reformatory school for juvenile offenders at Chingleput, which has done good work.

Jail manufactures.

Except in subsidiary jails, prisoners under sentence of hard labour are largely employed upon manufactures, this system not only tending to reduce prison expenditure, but also to teach the convict an employment which will be useful to him when released. Most of the manufactures are for the army and the various departments of Government, and they consist largely of weaving cloth, blankets, tape, &c., and making shoes and sandals, mats and ropes. In the Vellore Central jail the chief industry is the manufacture of tents for Government departments; in the Penitentiary at Madras large numbers of prisoners are employed in printing for Government; while in the Coimbatore Central jail the main form of employment is weaving.

Education. Its history.

The first impulse to education in the Presidency was given by a Government inquiry into the matter suggested by Sir Thomas Munro in 1822. This showed that there was approximately one school to every 1,000 of the population, and that the number of boys taught was one-fourth of the population of school-going age; but it also showed that the instruction imparted in these indigenous institutions was of little practical value, tending rather to burden the memory than to train the intellect. A Board was therefore appointed to organize a system of public instruction, an annual grant of Rs. 50,000 was sanctioned for the establishment of schools, and in 1826 14 Collectorate and 81 *tāluk* schools, with a central training-school at Madras, were opened. In 1836 this scheme was pronounced a failure and the schools were abolished as inefficient. The whole policy was then altered, and it was decided that European literature and science (instead of native literature) should be encouraged. The Board of Public Instruction was superseded by a Committee for Native Education. But this latter was not a success, and in 1840 a University Board was instituted by Lord Ellenborough's Government to organize and establish a central school and a few provincial schools to be connected with it by scholarships. In 1841 the central school was converted into a high school, in 1853 a college department was added to it, and later it developed into the Presidency College. Between 1836 and 1852 little progress was made; but in the latter year the University Board was invested with the functions

of a Board of General Education, the annual grant of Rs. 50,000 was doubled, and by the end of 1854 there were, besides the central college at Madras, five provincial schools, and a few elementary vernacular schools in Cuddalore, Rājahmundry, and elsewhere.

Some of the indigenous schools still existed, and there were, in addition, a large number of Mission schools. Most of the latter were elementary institutions. The General Assembly's school started in Madras in 1837, by the Rev. John Anderson, the pioneer of higher education in the Presidency—which developed into the present Christian College—is, however, one instance of the foundation of a school of a superior class. There were also a few institutions established by native agencies, the most important being Pachayyappa's at Madras, which was opened in 1842.

In the early fifties Mr. G. N. Taylor, Sub-Collector at Rājahmundry, formed a society for the encouragement of vernacular education, and established elementary schools at Narasapur (the nucleus of the present Taylor high school) and three neighbouring towns. In 1855 he organized a system of village schools, which were mainly supported by local subscriptions and were inspected by officials appointed by Government; and by 1861 these numbered 101.

In 1854 the Court of Directors issued its memorable dispatch regarding education. Thereupon the present Educational department, with a Director of Public Instruction and an inspecting staff, was organized; the so-called Madras University was remodelled and designated the Presidency College; a normal school was established; Zila, or District, schools were opened; and the grant-in-aid system was introduced. This last gave a great impetus to aided education, mainly by its liberal provisions in regard to salary grants and the introduction of the results system. While in 1859 there were 460 educational institutions with 14,900 pupils, by 1881 (see Table XV at the end of this article) these figures had risen to 12,900 and 327,800.

Higher education in the Presidency largely owes its extension and consolidation to Mr. E. B. Powell and the Rev. Dr. Miller. The former was in charge of the central school at Madras, already referred to, from 1840 to 1862, during which time he expanded it into the existing Presidency College, and was subsequently Director of Public Instruction for twelve years. The latter took charge in 1862 of the school which the Rev. John Anderson had started and transformed it into the present Madras Christian College, the premier private college

of Madras. Both gentlemen, moreover, exercised the widest influence in all the many educational questions which have from time to time arisen.

The present Educational department.

The Educational department comprises three services: namely, the Indian Educational service, which is entirely recruited from England, and includes 23 officers, of whom 16 are principals, vice-principals, or professors in the colleges, and 6 belong to the inspecting staff; the Provincial service, recruited in India and comprising 35 officers, of whom 11 belong to the inspecting staff and the remainder are head masters or lecturers in the colleges; and the Subordinate service, including all officers whose salaries are below Rs. 200. All educational institutions which are qualified for recognition are inspected by the department. This is effected by 7 Inspectors (2 of whom are natives), 12 Assistant, and 58 Sub-Assistant Inspectors. Girls' schools and primary classes are supervised by separate staffs. The chief direct instruction carried out by the department is in the Government colleges.

University education.

In 1857 the Madras University was incorporated by legislative enactment. Its constitution was materially altered by the recent Act VIII of 1904. It now controls education in Coorg, Hyderābād, Mysore, and Ceylon, as well as within the Presidency. Its Senate or governing body is composed of the Chancellor (the Governor of Madras), the Vice-Chancellor (nominated by Government from among the Fellows for a period of two years), 5 *ex officio* Fellows, and 50 to 100 ordinary Fellows, 10 of whom are elected by the registered graduates and 10 by the Faculties, while the remainder are nominated by the Chancellor. It is divided into the four Faculties of Arts, Law, Medicine, and Engineering. The executive government of the University is vested in a Syndicate, consisting of the Vice-Chancellor, the Director of Public Instruction, and 10 other ordinary or *ex officio* Fellows elected by the Senate, 5 of whom must be heads of, or professors in, colleges affiliated to the University. The powers of the Syndicate include the control of examinations and the appointment of Fellows and others to the boards of studies. There are fourteen of these boards; and they hold office for three years, nominate examiners in their respective branches, recommend textbooks, and so forth.

The colleges affiliated to the University, including those in Native States, numbered 50 in 1891 and 61 in 1904. They comprise the Government colleges of Law, Medicine, and Engineering at Madras, the Law college at Trivandrum, 2 Government training colleges at Saidapet and Rājahmundry,

and 55 Arts colleges, of which 15 are first-grade and 40 second-grade. Of the first-grade colleges 3 (the Presidency College and the institutions at Kumbakonam and Rājahmundry) are maintained by Government, and 8 (the Madras Christian College, Pachayyappa's College, the Jesuit and S.P.G. Colleges at Trichinopoly, St. Peter's College at Tanjore, the Noble College at Masulipatam, the Mahārājā's College at Vizianagram, and St. Aloysius's College, Mangalore) are managed by private agencies. Of the second-grade institutions one of the best known is the Victoria College at Pālghāt, which is managed by the local municipal council.

The University has been self-supporting since 1879, and now has a balance in hand of over 5 lakhs. In 1904 its expenditure was Rs. 2,12,000, while its receipts from fees were Rs. 2,31,000 and from other sources Rs. 15,000.

The number of degrees conferred in recent years is given in Table XV A. The minimum length of attendance at a college for the attainment of a degree is four years. To deliver students from the unwholesome surroundings of native lodgings, a number of hostels have lately been opened for their accommodation. The first was started in connexion with the Christian College by Dr. Miller in 1882. Three others were afterwards added by him, partly at his own expense. The Victoria hostel attached to the Presidency College has accommodation for 178 students; five smaller ones for members of different religions and sects have been established in connexion with the Saidapet Teachers' College; and others are being erected for the Government colleges at Rājahmundry and Kumbakonam. Many mission institutions already possess boarding-houses, and other private colleges and schools are erecting similar buildings.

Secondary education of boys.

The secondary course of education consists of two stages. Boys from the primary schools enter the lower secondary classes, of which there are three, remain in them three years, and then pass to the upper secondary classes. These are similarly three in number, and the course again lasts three years. In the highest class boys are prepared for the University matriculation. In lower secondary schools reading, writing, and arithmetic are compulsory, and there are a number of optional subjects. Instruction is at first entirely in the vernacular, but English is introduced gradually. In the upper secondary classes English, a second language, arithmetic, Euclid, algebra, history, geography, drawing, and science (physics and chemistry) are compulsory subjects; and while in the lowest of the three forms

some instruction is still given in the vernacular, in the two highest it is almost entirely in English.

Of the secondary schools in existence in 1904, Government maintained 2 per cent., the local boards 19 per cent., and the municipal councils 4½ per cent., while 54½ per cent. were aided, and 20 per cent. unaided institutions. Aid is given from public funds by grants towards the salary of the teachers proportioned to their qualifications; by fixed grants; by grants varying with the results obtained at the public examinations; or by contributions towards the cost of buildings, hostels, books, furniture, and so forth. In 1904 one boy in every forty-five of a school-going age was in the secondary classes.

Primary education of boys. Primary education has two stages, the lower covering four years and the upper a fifth year. Lower primary schools are those in which there are only four standards—infant and first to third—and upper primary those in which there is a fourth standard. The compulsory subjects are reading, writing, and arithmetic. Instruction is given entirely through the vernacular, but English may be taught as an optional subject in the third and fourth standards.

Of the public primary schools in existence in 1904, 53 per cent. were aided and 33 per cent. unaided, while 12 per cent. were maintained by local boards, and the small remainder by Government or municipal councils. To schools which satisfy the conditions required for recognition by the Educational department, aid is given in the shape of fixed grants, the amount of which is determined chiefly by their efficiency; schools which only partially fulfil these conditions are aided either with fixed grants or with results grants calculated upon the results of the standard and primary examinations; while schools under public management gain salary-results grants, half the results grants earned being paid to the teachers, who receive fixed salaries in lieu of the other half.

In 1904 one boy in every five of school-going age was in the primary classes. Table XV shows how considerable has been the advance in recent years. The introduction of results grants in 1865 and the provisions of the Towns Improvements and Local Funds Acts of 1871 authorizing local bodies to devote funds to education were instrumental in giving the first impetus. Except that agriculture is an optional subject, there are no special arrangements for the instruction of children belonging to the agricultural classes. The qualification for teachers in upper and lower primary schools is a pass in the lower secondary or upper primary examination respectively, and the receipt

of the teachers' certificate of those grades. But the supply of men so qualified is less than the demand, and teachers of approved experience are considered qualified even though they have not passed these tests. Their usual rates of pay are from Rs. 7 to Rs. 12 a month.

Education of girls.

The education of girls was begun by missionaries, and it was not until 1866 that Government started its own schools for them. In 1881 there were 540 schools for girls; in 1891, 987; and in 1904, 1,091. The percentage of girls under instruction to the population of school-going age in those years was 1·6, 3·3, and 4·8 respectively. In 1896 a second-grade college for girls was opened at Pālamcottah, and two others were started in Madras City in 1899 and 1900. All three are under mission management. Of the public schools of all grades for girls in 1904, 16 per cent. were maintained by Government, 1 per cent. by the local boards and municipalities, and 83 per cent. by private agencies. The missions take the largest share in the extension of female education; but Government makes special efforts in the matter, maintaining schools all over the Presidency which are directly managed by inspecting officers, and granting exceptional concessions and assistance. The subjects taught to girls are reading, writing, and arithmetic, history, geography, hygiene, and drawing, and certain others specially suited to their sex, namely, needlework, domestic economy, and (in some of the mission schools) lace-making.

Secondary education among girls is chiefly confined to Europeans and Native Christians. Few Hindu or Muhammadan girls go beyond the lower secondary stage, the practice of early marriage and the prejudices engendered by the caste and *gosha* (or *parda*) systems obstructing their progress. The only method of meeting this difficulty is by extending *zanāna*, or home, education; and much good work is being done by *zanāna* agencies, such as those of the Free Church and Church of England missions and the National Indian Association.

Special schools.

Perhaps the first attempt to train teachers in India was that made by Dr. Andrew Bell at the end of the eighteenth century. He brought into prominence the mutual or monitorial system of instruction (sometimes also called the 'Madras system') which was the forerunner of the English 'pupil-teacher' system. On returning to England in 1797, he wrote a pamphlet upon it and introduced it into several schools there, of which he was a kind of inspector; and eventually a school was started in Edinburgh on his plan, and the system spread through England

and Scotland and was adopted in Europe and America. But a few years' experience revealed its inherent defects, and it has now passed into the limbo of forgotten educational methods.

In 1856 the Government normal school, the nucleus of the present Teachers' College at Saidapet, was started, and it was soon followed by others. Statistics appear in Table XV. Other special schools now in existence include three Medical schools with 400 students; the school of Engineering and Surveying, which forms a department of the College of Engineering; and the Government School of Arts in Madras City, which has about 300 pupils. The technical schools include this last, the District board Technical Institutes at Madura and Tinnevelly, the Anjuman for Musalmāns in Madras City, the Art Industrial (mission) schools at Nazareth and Karūr, the Reformatory school at Chingleput, and the Government School of Commerce at Calicut. Besides this last institution, which has 135 pupils, there are four smaller commercial schools, of which three are managed by missions. The only institution for the study of agriculture is the Agricultural College at Saidapet, which is to be removed to Coimbatore; but the Free Church Mission in Chingleput has recently started an experimental school for teaching the subject.

European and Eurasian education.

The system of education and the curricula and subjects for Europeans and Eurasians differ little from those for natives. Excepting a few charitable institutions subsidized by Government, such as the asylums in Madras City and Ootacamund, all European schools are maintained either by missions or from charitable endowments. The chief of the endowed institutions are the Doveton college and high school, Bishop Corrie's grammar school, and Bishop Gell's girls' school, all of which are in Madras City. In 1904 there were altogether 103 institutions for Europeans and Eurasians, with 8,700 pupils. Of these, 5 were colleges, 73 secondary schools, 7 special schools, and 18 primary schools. Sixteen Europeans in all passed the different branches of the B.A. degree examination, while nine passed University Medical examinations. A special officer for the inspection of European schools has recently been appointed. European youths after they leave school or college usually seek employment on railways, in shops or mercantile firms, or in the Telegraph department; but those who can afford it qualify as engineers, overseers of works, or medical practitioners. Women generally enter the medical and teaching professions.

Muhammadan education.

Among Muhammadans, education has required special encouragement. The long course of instruction in the Korān enjoined by their religion hampers them in the race with Hindus, and they have been slow to adapt themselves to the changed circumstances which make learning the one road to advancement. In 1860 the Madrasa-i-Azam, established in 1851 by the Nawāb of Arcot, was taken over by Government. The only other high-class institutions for Muhammadans then in Madras were the Mylapore middle school and the Harris school, a missionary institution opened in 1857 with an endowment. In 1872 elementary schools for Musalmāns were established in large Muhammadan centres in the Presidency, and schools for the Māppillas of Malabar were organized and brought under inspection. Muhammadans obtained concessions in the matter of fees and were aided with scholarships, a training-school was started in Madras City, and a Deputy-Inspector of Muhammadan schools was appointed. The result of these measures has been a marked advance in the number of Musalmāns at school, and at present the percentage of Muhammadan pupils in primary classes to the population of that religion of school-going age is higher than the corresponding figure among Hindus. In all the higher stages of education, however, the Hindus are ahead of the Muhammadans, the similar percentages in the secondary classes being for Hindus 1·69 and for Musalmāns 1·45, and in the collegiate stage 0·09 and 0·03 respectively. Of those who passed the Matriculation, First Arts, and B.A. examinations respectively in 1903-4, 86, 89, and 90 per cent. were Hindus, and only 2, 1, and 2 per cent. were Musalmāns.

Education of depressed and backward classes.

Of late years special efforts have been made to educate the depressed classes, or Panchamas as they are officially termed. In 1904, 3,100 schools with 78,000 pupils were maintained for them at a cost of 3·59 lakhs. The hill-tribes in the Agency tracts of the three northern Districts and a number of backward tribes in other localities also now receive particular attention.

General educational results.

Statistics of the expenditure upon education appear in Table XV B. The percentage of the total population of school-going age under instruction rose from 7·1 in 1881 to 12 in 1891, to 14·7 in 1901, and to 16·1 in 1904. At the Census of 1901 it was found that in every 1,000 of the male and female population, 119 and 9 respectively could read and write, but that only 9 and 1 respectively could read and write English. Excluding the exceptional cases of Madras

City and the Nīlgiris, the Districts in which education is most advanced are the three rich areas of Tanjore, Malabar, and Tinnevelly, while it is most backward in Salem and Vizagapatam. Of the various communities the Europeans and Eurasians are by far the most literate. In the education of boys, the Brāhmans come next, but their girls are less advanced than those of native Christians. The most backward communities are the Panchamas and the hill-tribes.

The fees levied in private institutions differ greatly. The standard rates prescribed, per term, for institutions under public management are as follows:—Senior college, Rs. 40; Junior college, Rs. 32; the three upper secondary classes, Rs. 19, Rs. 17, and Rs. 15 respectively; the three lower secondary classes, Rs. 11, Rs. 9, and Rs. 7; and the five primary standards, Rs. 4-8, Rs. 3-6, Rs. 2-4, Rs. 1-8, and Rs. 2-2.

Twenty years ago the native papers of Madras were for the most part devoted to religious matters. But of 65 vernacular and diglot newspapers and periodicals now published in the Presidency and its feudatory States less than one-half are devoted to religion, while about a fifth are political, and the remainder deal with literary matters or general and local news. About sixty newspapers and periodicals are published in English. Of the newspapers, the *Madras Mail* and the *Madras Times*, which have a daily circulation of from 3,000 to 4,000 copies each, are the two chiefly read by Europeans and Eurasians; while the *Hindu* (circulation 1,800 daily) is the paper of the educated natives. Musalmāns are represented by the *Muhammadan*, a bi-weekly with a circulation of 500, and by nine other periodicals published in Hindustāni or Hindustāni and English. Several monthly magazines of repute, among them the *Indian Review* with a circulation of 1,000, deal with current literary and general topics; and, besides the organs of the various religious communities, there are periodicals representing the tea- and coffee-planting interest, the social reform party, the educationists, and others. **Newspapers.**

Excluding mere republications, the number of books and publications registered in 1904 was 1,125, of which 29 were translations. Nearly one-fourth of these were school textbooks, and more than 400 were religious pamphlets. Of the remainder, 87 (mostly in the vernacular) were poetry and 58 were fiction or dramatic works. The evidence of any original research among them is at present small. **Books.**

Of the medical institutions of the Presidency, the General Hospital at Madras is the largest and the oldest. In 1744 **Medical. History of**

chief institutions. a granary which stood on part of the site now occupied by it was converted into a naval hospital, and an adjoining warehouse was subsequently made into a garrison hospital. Later, the two buildings were transformed into a General Hospital, of which the western half was allotted to the troops in garrison and the eastern to military details, sailors, and European and Eurasian civilians. Natives were accommodated in separate structures on the premises. In 1859 this building was enlarged and an upper storey was built. The eastern half then became the station hospital for the troops in garrison, and the western a civil hospital for European, Eurasian, and native males. In 1897 wards for women and children were added, and in 1899 the eastern portion was handed over to the civil authorities and the institution became for the first time a purely civil hospital. It nowincludes several separate buildings, among which are quarters for nurses, an operation theatre, the out-patient department, private quarters for native patients, and isolation wards. There are 500 beds, and the average daily number of out-patients is 450. Since about 1870 its punkahs have been pulled by steam, and it is lighted by electricity.

The next oldest medical institution is the Government Ophthalmic Hospital. In 1819 a house was rented in Royapettah, Madras, by the Directors for the 'Eye Infirmary,' as it was then called. In the next year the institution was moved to Vepery, and in 1886 it was transferred to its present excellent quarters. It has 76 beds, and the daily attendance of out-patients is 130.

The Royapettah Hospital, established in 1843, is managed by the municipal corporation, Government paying the salaries of the staff. It has 55 beds for natives, and the average daily number of out-patients is 250.

The Government Maternity Hospital in Madras originated in a building in Riverside Road erected by public subscription in 1844. Government met the cost of the staff and the dieting of the patients, and the hospital was managed by a committee of six medical officers who gave their services gratuitously. In 1847 a professorship of midwifery was established at the Medical College, and Government then assumed charge of the institution and appointed the professor as its Superintendent. In 1852 two wings were added. In 1881 the institution was moved to the present building in the Pantheon Road. This has since been enlarged and now consists of five blocks, connected by corridors, which contain 140 beds.

Rājā Sir Rāmaswāmi Mudaliyār's Maternity Hospital was

built and partly endowed by the gentleman whose name it bears. It was opened in 1880 and then consisted of two wards—one for caste, and the other for non-caste, native patients. Europeans and Eurasians are not usually treated in it. Since its foundation it has several times been enlarged, and it now contains 48 beds, of which about half are usually occupied. It is under the superintendence of a Government medical officer. The Monegar Choultry Fund contributes to the outlay on the institution, and Government supplies medical aid and instruments free.

The Victoria Hospital for caste and *gosha* (or *parda*) women is the latest addition to the larger medical institutions of Madras, and is the only one which is not in any way supported by public funds. It is maintained from the interest on investments and from subscriptions. The scheme for erecting it was started in 1885 under Lady Grant Duff's auspices, and it was built mainly from a donation of a lakh of rupees from the Rājā of Venkatagiri. The hospital was opened in 1890, and in 1902 it was transferred to the Lady Dufferin Fund. It has 64 beds, and the daily attendance of out-patients is 120.

A Pasteur Institute is in course of construction at Coonoor.

Further statistics of the hospitals of the Presidency are given in Table XVI at the end of this article.

Lunatic asylums.

The Government Lunatic Asylum at Madras was opened in 1871. It originated in an older institution, the buildings of which were condemned as unsuitable in 1866. It occupies an excellent site nearly 60 acres in extent, contains accommodation for 680 cases, and is in charge of a special officer.

Statistics of the several lunatic asylums in the Presidency are given in Table XVI. Of the 769 cases admitted during the five years ending 1902, the history of only about one-half was ascertainable. Of this number exactly one-half had become insane from fever, epilepsy, and other physical causes, and nearly one-fourth from various moral causes; in about one-tenth the insanity was hereditary or congenital; and in the remaining one-seventh it was ascribed to the use of intoxicants of various descriptions—chiefly to smoking *gānja*, a preparation of the hemp-plant. Opium-eating was the cause of five of the 769 cases.

Vaccination.

Statistics of vaccination will be found in Table XVI. Formerly inoculation was much practised by native physicians. A healthy person was inoculated with lymph from a patient suffering from small-pox, and the lymph so produced was employed for subsequent operations. The practice is now

prohibited and has virtually ceased. The present Government vaccinators are recruited from many different castes, and not specially from the classes which used to practise inoculation. Animal vaccine is supplied to them in sealed tubes from the King Institute of Preventive Medicine, near Madras City. At this institution bacteriological work and the preparation of various sera are also carried on.

Quinine. To provide a cheap and readily available remedy for the malaria which infests parts of many Districts the Government sells, at cost price, in all post offices, the quinine made at the Government Cinchona Factory at Naduvattam. Postmasters are allowed a small commission on the sales, and the quinine is made up in 7-grain packets, for which the charge is 3 pies (= one farthing). In 1891-2, the second year in which the system was in operation, 49,600 packets were sold. In 1903-4 the number had risen to 2,050,000.

Village sanitation. Efforts for the improvement of village sanitation date from 1871, when the first Local Funds Act recognized the duty of local bodies in the matter. The existing Act of 1884 has emphasized their responsibilities. In the smaller villages want of funds hampers advance, and improvement must depend largely upon the gradual growth of a public opinion upon the subject. But in those larger villages which have been constituted Unions, the house tax and other income raised is spent chiefly upon small sanitary works, such as the daily cleansing of the streets and the improvement of the existing sources of water-supply. The gatherings at religious fairs and festivals were formerly foci of disease, the departing pilgrims carrying the infection contracted at them all over the country. They are now specially watched by the medical officers, who ensure that sanitary precautions are taken.

Surveys. A topographical survey of the Presidency was made at the beginning of the last century by the Quartermaster-General's department, and the results were embodied in 23 sheets of the Atlas of India on a scale of 4 miles to the inch. In 1858 the Madras Survey department was organized, and it has since surveyed cadastrally, and mapped, all the Government villages except those in hilly areas. The standard scale is 16 inches to the mile, and the maps show the boundaries of every field and all important topographical details, while the field-measurement books from which the maps are plotted and the field registers go farther, giving the actual measurements of each field, its number, area, tenure, ownership, and so forth. Hilly and forest country, where less detail is required, has been surveyed

topographically on scales varying from 4 inches to ½ inch to the mile. These maps show topographical details, but not the boundaries of properties. *Zamīndāri* land has, as a rule, only been surveyed topographically, though in recent years as many as fifty estates with a total area of nearly 2,000 square miles have, at the request of their proprietors, been surveyed cadastrally by the department, and twenty-eight more, with an area of 3,000 square miles, are being surveyed. Of the 141,700 square miles of which the Presidency consists, all but 11,500 square miles has been surveyed either topographically or cadastrally; and of the remainder 10,100 square miles consist of hills in the Districts of Madura, Tinnevelly, Malabar, South Kanara, and hills and *zamīndāris* in Ganjām and Vizagapatam, all of which will be topographically surveyed by the Survey of India. The initial survey of the Presidency has thus been almost completed. In addition, Madras City and twenty-seven other large towns have been surveyed and mapped on scales of 160, 80, or 40 inches to the mile, in order to define the limits of private and public properties and check encroachments on the latter.

The village accountants are required to maintain the records-of-rights in their villages; but an attempt to utilize them to keep the village maps up to date in the matter of fresh occupations, transfers of ownership, and so forth has not been successful, partly because of the large arrears of changes which had accumulated before the system was introduced, and partly owing to the difficulty of supervising so large a body of men. Several Districts are now being resurveyed, and a scheme for adequately maintaining the records so obtained has very recently been introduced.

[Further particulars of the Presidency will be found in the Bibliography. *Madras Manual of Administration*, 3 vols. (Madras, 1885 and 1893); the *Census Reports* of 1871, 1881, 1891, and 1901; Talboys Wheeler's *Madras in the Olden Time*, 3 vols. (Madras, 1861-2); Orme's *History of the Military Transactions in Indostan*; Col. W. J. Wilson's *History of the Madras Army*, 5 vols. (Madras, 1882-9); Sir A. Arbuthnot's *Minutes, &c., of Sir Thomas Munro*, 2 vols. (1881); the *Reports of the Archaeological Survey of India*; Mr. Srīnivāsarāghava Ayyangār's *Forty Years' Progress in Madras* (Madras, 1893); and Mr. J. J. Cotton's *List of Inscriptions on Tombs, &c.* (Madras, 1903). The several Districts are described in the *Manuals* or *Gazetteers* regarding each. Particulars of the different departments are given in their respective annual reports.]

TABLE I

Distribution of Population, Madras Presidency, 1901

Natural Divisions, Districts, and States.	Area in square miles.	Number of towns.*	Number of villages.	Total Population.			Urban Population.*			Persons per square mile in rural areas.
				Persons.	Males.	Females.	Persons.	Males.	Females.	
East Coast and Agencies.										
Ganjām	8,372	8	6,145	2,010,256	961,886	1,048,370	97,531	45,341	52,190	240
Vizagapatam	17,222	12	12,032	2,933,650	1,450,367	1,483,283	196,545	95,028	101,517	170
Godāvari †	7,972	13	2,665	2,301,759	1,131,722	1,170,037	226,414	109,648	116,766	269
Kistna †	8,498	13	1,818	2,154,803	1,090,301	1,064,502	185,416	92,226	93,190	254
Nellore †	8,761	10	1,758	1,496,987	752,517	744,470	121,572	60,243	61,329	171
Total	50,825	56	24,418	10,897,455	5,386,793	5,510,662	827,478	402,486	424,992	214
Deccan.										
Cuddapah	8,723	10	1,237	1,291,267	655,818	635,449	118,839	59,116	59,723	148
Kurnool	7,578	3	751	872,055	440,615	431,440	47,015	23,166	23,849	115
Bellary	5,714	10	929	947,214	480,876	466,338	171,195	86,686	84,509	158
Anantapur	5,557	11	684	788,254	403,356	384,898	112,430	57,117	55,313	142
Total	27,572	34	3,601	3,898,790	1,980,665	1,918,125	449,479	226,085	223,394	139
South.										
Madras	27	1	..	509,346	256,730	252,616	509,346	256,730	252,616	..
Chingleput	3,079	15	2,144	1,312,122	661,431	650,691	189,422	94,692	94,730	426
North Arcot	7,386	12	3,912	2,207,712	1,100,816	1,106,896	169,554	81,156	88,398	299
Salem	7,530	11	3,782	2,204,974	1,085,532	1,119,442	176,366	84,777	91,589	284
Coimbatore	7,860	10	1,435	2,201,752	1,083,050	1,118,702	156,666	76,697	79,969	274
South Arcot	5,217	10	2,745	2,349,894	1,168,167	1,181,727	171,935	84,329	87,606	442
Tanjore	3,710	19	2,510	2,245,029	1,066,423	1,178,606	352,641	167,322	185,319	561
Trichinopoly	3,632	5	932	1,444,770	699,839	744,931	155,553	75,472	80,081	370
Madura	8,701	21	4,113	2,831,280	1,357,056	1,474,224	346,882	167,132	179,750	313
Tinnevelly	5,389	29	1,482	2,059,607	1,001,799	1,057,808	472,579	229,498	243,081	382
Total	52,531	133	23,055	19,366,486	9,480,843	9,885,643	2,700,944	1,317,805	1,383,139	349
West Coast.										
Nilgiris	957	2	48	111,437	60,550	50,887	27,121	14,183	12,938	116
Malabar	5,795	7	2,213	2,800,555	1,383,917	1,416,638	218,007	110,529	107,478	470
South Kanara	4,025	2	1,275	1,134,713	548,516	586,197	52,149	26,604	25,545	282
Total	10,777	11	3,536	4,046,705	1,992,983	2,053,722	297,277	151,316	145,961	369
British territory, Total	141,705	234	54,610	38,209,436	18,841,284	19,368,152	4,275,178	2,097,692	2,177,486	261
Feudatory States.										
Travancore	7,091	9	3,885	2,952,157	1,490,165	1,461,992	183,835	93,629	90,206	416
Cochin	1,362	7	652	812,025	405,200	406,825	87,478	45,389	42,089	596
Pudukkottai	1,100	1	377	380,440	180,794	199,646	20,347	9,949	10,398	346
Banganapalle	255	..	63	32,264	16,231	16,033		..	..	127
Sandūr	161	..	20	11,200	5,658	5,542		..	..	70
Feudatory States, Total	9,969	17	4,097	4,188,086	2,098,048	2,090,038	291,660	148,967	142,693	420
Grand Total	151,674	251	59,607	42,397,522	20,939,332	21,458,190	4,566,838	2,246,659	2,320,179	272

* The places shown in column 3 are those which were treated as 'towns' at the Census of 1901. Their population is given in columns 8–10. The rural areas of the last column exclude only such of these as had over 50,000 inhabitants.

† The limits of these three Districts have recently been altered (see p. 3); and a slight change made in Malabar also (p. 3).

TABLE II. Temperature, Madras Presidency

Station.	Height in feet of Observatory above sea-level.	Average temperature in degrees (Fahrenheit) in January. Mean.	January. Diurnal range.	May. Mean.	May. Diurnal range.	July. Mean.	July. Diurnal range.	November. Mean.	November. Diurnal range.
Vizagapatam (Waltair)	226	74·9	12·9	86·7	11·0	84·8	11·0	78·5	12·3
Cocanāda	26	73·8	15·5	91·4	17·8	85·4	12·3	77·0	12·7
Nellore	71	76·6	19·7	93·9	24·0	88·6	17·3	79·1	14·7
Cuddapah	433	76·8	23·5	94·6	22·2	86·6	17·3	78·6	18·2
Madras	22	76·2	17·5	89·6	17·2	87·3	17·0	76·7	16·9
Madura	447	78·3	18·9	88·8	22·6	84·8	24·8	80·0	14·7
Coimbatore	1,348	75·6	22·8	84·3	21·6	79·4	17·4	77·6	17·3
Calicut	27	78·7	17·6	84·2	12·5	78·2	8·7	80·4	13·9
Trivandrum (Travancore)	198	77·5	12·0	81·6	9·7	77·6	8·6	77·6	10·1
Wellington (Nilgiris)	6,200	56·5	22·7	67·1	18·2	64·5	13·3	59·6	15·4

NOTE.—The diurnal range is the average difference between maximum and minimum temperatures of each day.

TABLE III. Rainfall, Madras Presidency

Station.	Average rainfall (in inches) for twenty-five years ending with 1901 in January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total of year.
Vizagapatam (Waltair)	0·32	0·41	0·36	0·59	2·88	3·69	4·45	5·05	7·90	9·85	5·87	1·60	42·97
Cocanāda	0·14	0·51	0·43	0·49	1·96	4·21	5·81	5·86	6·19	8·87	5·59	0·89	40·95
Nellore	0·38	0·09	0·17	0·32	1·33	1·31	2·31	3·01	3·83	9·01	11·71	2·82	36·29
Cuddapah	0·15	0·17	0·12	0·52	1·75	3·14	4·04	5·80	6·12	5·51	3·71	1·06	32·09
Madras	0·50	0·31	0·18	0·48	1·64	2·12	3·91	5·13	4·93	11·14	13·97	6·20	50·51
Madura	0·26	0·48	0·50	2·36	2·86	1·22	1·94	3·61	5·22	8·53	4·78	2·16	33·92
Coimbatore	0·38	0·43	0·46	1·76	2·21	1·75	1·15	1·12	1·53	6·29	3·44	1·17	21·69
Calicut	0·18	0·16	0·57	4·28	9·74	35·77	27·91	16·32	7·67	10·50	4·66	1·05	118·81
Trivandrum (Travancore)*	0·43	1·01	1·48	4·98	5·59	12·58	6·48	3·64	2·78	11·02	6·02	2·47	58·48
Wellington (Nilgiris)	1·05	1·44	2·39	3·59	3·66	3·47	3·48	3·97	5·71	11·06	6·89	3·94	50·65

* The figures here for January to August are for twelve years and for the other months for thirteen years.

TABLE IV

Statistics of Agriculture, Madras Presidency

(In square miles)

	Average, 1884-5 to 1889-90.	Average, 1890-1 to 1899-1900.	1900-1.	1903-4.
Government	87,519	87,937	88,225	88,623
Minor *ināms*	12,456	7,119	6,773	6,616
Whole *ināms*		5,291	5,513	5,498
Zamīndāris	42,773	40,708	40,945	41,033
Total area by professional survey	142,748	141,055	141,456	141,770
Forests	14,789	17,734	19,353	19,484
Not available for cultivation	19,277	19,863	19,747	19,442
Cultivable waste other than fallow	13,811	10,795	9,780	8,555
Current fallows	7,983	9,092	9,005	8,966
Net area cropped	35,698	37,300	38,297	40,422
Total area shown in village accounts	91,558	94,784	96,182	96,869
Irrigated from Government canals	3,972	4,067	4,378	4,388
Irrigated from private canals	42	44	39	37
" tanks	3,569	3,098	2,939	3,381
" wells	1,494	1,705	1,730	1,677
" other sources	367	223	244	273
Total area irrigated	9,444	9,137	9,330	9,756
Food crops.				
Rice	9,225	10,255	10,300	12,139
Cholam	6,133	7,120	7,464	6,374
Cambu	3,864	4,206	4,634	4,533
Rāgi	2,367	2,605	2,613	2,484
Other food-grains, including pulses	8,572	9,092	9,848	10,759
	30,161	33,278	34,859	36,289
Industrial crops.				
Gingelly	841	1,119	1,328	1,338
Other oilseeds	1,237	1,545	1,514	1,916
Condiments and spices	481	527	650	645
Sugars	122	186	188	189
Cotton	2,277	2,322	2,145	2,717
Coffee	94	98	100	80
Tobacco	128	158	184	209
Miscellaneous	1,909	2,414	2,538	2,742
Total area cropped	37,250	41,647	43,506	46,125
Deduct area cropped more than once	2,561	4,347	5,209	5,723
Net area cropped	34,689	37,300	38,297	40,402

NOTE.—Except the first five items, the figures in this table relate to *ryotwāri*, 'minor *inām*,' and the greater part of the 'whole *inām*' land. Rice is usually irrigated, sugar-cane always, and *cholam* and *rāgi* sometimes.

TABLE V

Financial Results of Irrigation Works, Madras Presidency

(In lakhs of rupees)

	Average, 1881–90.	Average, 1891–1900.	1900–1.	1903–4.
Major Works.				
Receipts	43	69	82	82
Expenditure	29	44	46	49
Net profits	14	25	36	33
Percentage of net profits to capital outlay	2.6	3.4	4.8	4.3
Minor Works for which capital and revenue accounts are kept.				
Receipts	3	10	9	12
Expenditure	3	4	4	5
Net profits	...	6	5	7
Percentage of net profits to capital outlay	...	3.0	2.5	3.6
Other Minor Works.				
Receipts	75	74	80	96
Expenditure	15	18	18	22

TABLE VI

Wages and Prices, Madras Presidency

	Average for ten years ending			1903.
	1880.	1890.	1900.	
Daily Wages.				
Skilled labour :—				
In towns . . Rs.	0 7 6	0 8 1	0 8 4	0 8 3
In rural tracts . ,,	?	0 6 11	0 7 2	0 6 11
Unskilled ordinary labour :—				
In towns . . Rs.	0 2 10	0 2 11	0 3 2	...
In rural tracts . ,,	?	0 2 5	0 2 8	0 2 7
Cart hire :—				
In towns . . Rs.	0 6 0	0 4 9	0 5 2	0 5 0
In villages . . ,,	0 3 0	0 3 8	0 3 8	0 4 0
Prices [seers (2 lb.) per rupee].				
Second quality rice	14.3	15.0	11.5	12.7
Cholam	22.7	29.1	19.7	26.3
Cambu	23.1	27.6	19.8	26.6
Rāgi	24.4	30.2	21.3	25.9
Salt	14.3	13.4	12.3	12.8
Cotton piece-goods (per seer) :—				
European . . Rs.	...	1 13 0	2 3 0	2 4 0
Indian . . . ,,	...	1 11 0	1 7 0	1 5 0

Note.—Prices include those in years of famine.

TABLE VII

TRADE OF THE MADRAS PRESIDENCY WITH OTHER PROVINCES

(In thousands of rupees)

	By sea (exclusive of Government stores).			By rail.		
	1890-1.	1900-1.	1903-4.	1890-1.	1900-1.	1903-4.
Imports.						
Coal	2,24	21,66	17,76	2,50	26,05	14,01
Cotton, raw	2,95	10,21	4,52	28,65	20,16	37,46
Cotton piece-goods	42,77	40,95	36,50	8,11	21,71	40,92
Cotton twist and yarn	36,71	20,91	26,91	19,00	73,83	80,40
Dyeing and tanning materials	3,23	4,93	4,50	16,18	40,52	7,98
Grain and pulse	1,14,13	3,06,98	1,05,75	73,70	34,34	51,12
Hides and skins	5,94	3,00	3,80	1,07,72	1,73,70	1,04,02
Leather	73	38	1	1,29	1,52,67	87,42
Metals	19,70	11,92	15,98	7,47	18,48	19,58
Oils and oilseeds	1,86	17,70	32,85	23,10	30,64	53,58
Provisions	1,69	5,31	3,77	63,91	14,35	18,12
Salt	38,94	33,64	28,88	1,69	6,88	3,80
Silk	14,47	3,34	49	14,25	31,10	36,89
Spices	3,19	3,38	2,88	19,21	32,65	38,39
Wood and timber	12,83	23,44	29,23	*	6,19	4,85
All other articles	88,85	79,25	88,61	55,88	73,40	83,26
Total	3,90,23	5,87,00	4,02,44	4,42,66	7,56,67	6,81,80
Treasure	4,04	1,07	4,50	*	64,08	69,26
Exports.						
Coal and coke	...	...	...	4,55	29,87	16,65
Cotton, raw and manufactured	18,95	23,00	31,17	87,75	98,69	89,54
Drugs, medicines, and narcotics	2,49	1,59	2,19	4,45	21,86	4,35
Fruits and vegetables	41,60	39,03	33,46	*	6,84	4,16
Grain and pulse	14,75	14,41	48,49	14,52	2,17,65	84,07
Metals	20	1,28	83	16,90	23,59	24,56
Oils	31,50	69,96	80,27	4,83	17,20	17,08
Provisions	11,91	16,51	13,28	51,63	89,96	72,89
Salt	1,00	2,26	3,56	3,71	37,41	32,21
Seeds	42,57	27,02	22,89	4,37	8,39	9,61
Spices	28,76	48,06	45,05	22,85	37,45	36,18
Sugar	21,25	22,62	19,81	25,89	40,95	40,50
Tobacco	13,60	20,32	21,11	11,21	23,83	36,56
All other articles	74,09	74,99	54,77	1,16,94	1,37,87	1,60,31
Total	3,02,67	3,61,05	3,76,88	3,69,60	7,91,56	6,28,67
Treasure	13	2,25	...	*	75,58	98,49

* Not registered.

TABLE VII A

Foreign Trade of the Madras Presidency, exclusive of Government Stores and Treasure.

(In thousands of rupees)

	1890-1.	1900-1.	1903-4.
Imports.			
Apparel	21,13	20,81	29,04
Cotton twist and yarn	1,07,71	81,86	65,30
Cotton piece-goods, &c.	1,90,12	1,91,35	2,08,25
Hardware and cutlery	15,38	16,46	21,71
Liquors	19,69	20,47	22,45
Machinery and millwork	16,58	26,68	22,77
Metals	48,40	61,01	74,44
Oils	17,14	40,07	49,80
Railway plant and rolling stock	58,06	26,90	53,04
Spices	23,38	21,66	23,84
All other articles	1,04,34	1,55,13	1,80,84
Total	6,21,93	6,62,40	7,51,48
Treasure	32,38	79,71	1,31,80
Exports: Indian and Foreign Goods.			
Coffee	1,35,62	1,20,51	1,36,27
Coir, yarn and rope	17,55	40,28	48,13
Cotton, raw	2,33,53	1,53,96	2,56,52
Cotton twist and yarn	19,26	3,55	6,36
Cotton piece-goods, &c.	45,58	93,30	82,75
Grain and pulse	63,33	52,54	1,58,67
Hides and skins	2,00,66	3,68,61	2,71,85
Indigo	89,41	39,26	38,40
Oil-cake	5,50	23,81	30,35
Seeds	82,65	28,58	1,33,23
Spices	33,88	33,95	62,15
Sugar	38,42	14,03	8,31
Tea	8,05	32,43	51,74
All other articles	98,00	1,70,16	2,24,59
Total	10,71,44	11,74,97	15,09,32
Treasure	18,58	28,58	12,81

TABLE VIII

POST OFFICE TRANSACTIONS, MADRAS PRESIDENCY.

	1880–1.	1890–1.	1900–1.	1903–4.
Number of post offices	688	1,400	2,042	3,151
Number of letter boxes	*1,337	*2,156	3,855	5,933
Number of miles of postal communication	*13,678	13,486	17,870	23,471
Number of postal articles delivered:				
Letters	*20,929,335	*34,243,544	37,600,449	56,149,652
Postcards	*2,644,551	*16,876,636	30,022,554	46,974,616
Packets	*482,530	*2,459,083	†4,561,509	†6,786,338
Newspapers	*2,268,240	*4,229,776	‡3,839,435	‡5,205,850
Parcels	*127,124	*302,507	343,856	771,082
	Rs.	Rs.	Rs.	Rs.
Value of stamps sold to the public	*8,56,380	*17,06,630	21,78,845	30,67,290
Value of money orders issued	*56,78,520	*1,91,46,260	2,44,98,683	3,92,60,978
Total amount of Savings Bank deposits	...	51,71,146	65,78,716	68,64,120

* These figures include those for Coorg, Mysore, and the post offices in the Hyderābād State which are included in the Madras postal circle.

† Including unregistered newspapers. ‡ Registered as newspapers in the Post Office.

TABLE IX

STATISTICS OF CIVIL JUSTICE, MADRAS PRESIDENCY

	Average for ten years ending		1901.	1904.
	1890.	1900.		
Suits for money and movable property	203,948	270,894	288,610	283,162
* Title and other suits	39,766	48,814	49,087	44,010
Rent suits	5,019	8,498	10,340	7,567
Total	248,733	328,206	348,037	334,739

* Including applications for ejectment of tenants presented in the Presidency Court of Small Causes.

STATISTICS OF CRIMINAL JUSTICE, MADRAS PRESIDENCY

	Average for ten years ending		1901.	1904.	Percentage of convictions, 1904.
	1890.	1900.			
Number of persons tried:					
(*a*) For offences against person and property	157,797	192,156	170,193	166,987	15·7
(*b*) For other offences against the Indian Penal Code	36,025	56,744	54,005	56,327	42·7
(*c*) For offences against Special and Local laws	119,406	208,087	243,914	230,347	85·7
Total	313,228	456,987	468,112	453,661	54·6

NOTE.—These figures exclude persons [illegible]

TABLE X

Principal Sources of Revenue, Madras Presidency

(In thousands of rupees)

	Average for ten years ending March 31, 1890.		Average for ten years ending March 31, 1900.		Year ending March 31, 1901.		Year ending March 31, 1904.	
	Total amount raised in Province (Imperial, Provincial, and Local).	Amount credited to Provincial Revenues.	Total amount raised in Province (Imperial, Provincial, and Local).	Amount credited to Provincial Revenues.	Total amount raised in Province (Imperial, Provincial, and Local).	Amount credited to Provincial Revenues.	Total amount raised in Province (Imperial, Provincial, and Local).	Amount credited to Provincial Revenues.
Land revenue .	4,80,93	1,33,45	5,31,97	1,57,95	5,82,68	1,55,47	6,06,29	2,39,78
Salt . .	1,49,22	98	1,81,43	1,34	1,86,26	1,06	1,95,36	94
Stamps . .	57,73	35,08	76,81	57,61	85,66	64,24	84,58	63,43
Excise . .	83,18	34,13	1,33,79	33,45	1,35,90	33,97	1,77,02	44,26
Customs .	14,96	30	30,44	59	37,52	92	53,92	85
Assessed taxes	9,53	4,32	23,96	11,03	29,51	13,79	25,83	12,02
Forests . .	11,46	12,40	19,87	11,68	23,40	11,70	26,58	13,29
Registration .	7,82	4,49	12,57	6,29	14,48	7,24	15,38	7,69
Other sources .	61,79	20,39	1,85,48	35,44	2,47,31	40,02	2,88,54	42,58
Total	8,76,62	2,45,54	11,96,32	3,15,38	13,42,72	3,28,41	14,73,50	4,24,84

TABLE X A

Principal Heads of Provincial Expenditure, Madras Presidency

(In thousands of rupees)

	Average for ten years ending March 31, 1890.	Average for ten years ending March 31, 1900.	Year ending March 31, 1901.	Year ending March 31, 1904.
Opening balance . . .	30,49	37,82	5,67	42,71
Charges in respect of collections (principally Land Revenue and Forests) . . .	62,24	73,54	77,42	81,00
Salaries and expenses of civil departments:—				
(a) General administration	10,17	10,02	10,07	10,92
(b) Law and Justice . .	48,45	55,81	61,47	60,90
(c) Police . . .	38,16	44,31	46,84	49,95
(d) Education . . .	11,78	16,36	17,68	21,32
(e) Medical . . .	10,13	13,15	13,44	14,01
(f) Other heads . .	4,51	5,80	7,55	9,06
Pensions and miscellaneous civil charges . . .	19,67	25,17	29,05	34,05
Famine relief	1,93	2,83	1,12	...
Irrigation	11,90	34,97	34,90	45,72
Civil public works . . .	21,60	28,05	25,43	32,64
Other charges and adjustments	5,10	11,63	6,65	12,86
Total expenditure	2,45,64	3,21,64	3,31,62	3,72,43
Closing balance . . .	37,75	30,41	2,46	95,12

NOTE.—Owing to changes in the items of revenue and expenditure debited to Provincial funds and to other causes the averages shown above are in some cases for less than ten years.

TABLE XI

Income and Expenditure of Local Boards, Madras Presidency

	Average for ten years, 1891–1900.	1900–1.	1903–4.
Income.	Rs.	Rs.	Rs.
Cess on land	48,84,416	52,64,603	57,59,115
House tax	3,30,340	4,63,284	5,81,254
School fees	1,97,879	2,22,968	2,55,986
Markets and choultries	3,92,076	4,40,493	5,20,368
Tolls and ferries	9,22,085	9,62,718	10,56,418
Other sources of income	9,75,950	10,19,964	19,67,559
Total	77,02,746	83,74,030	1,01,40,700
Expenditure.			
Roads and buildings	42,11,697	44,21,642	56,49,602
Education	10,78,760	10,25,644	13,13,557
Medical, vaccination, and sanitation	14,17,730	15,16,739	20,64,820
Public and charitable institutions	3,02,074	2,92,690	3,11,172
Supervision and management	3,63,681	4,39,180	4,41,520
Contributions	3,21,308	3,10,155	2,30,908
Total	76,95,250	80,06,050	1,00,11,579

TABLE XII

Income and Expenditure of Municipalities, Madras Presidency

	Average for ten years, 1891–1900.	1900–1.	1903–4.
Income.	Rs.	Rs.	Rs.
Tax on houses and lands	6,67,544	8,57,088	9,44,393
" vehicles and animals	1,62,913	1,98,387	2,32,306
" professions and trades	2,08,612	1,95,956	2,07,149
Tolls	3,54,510	3,97,944	4,16,894
Water rate	54,708	1,53,750	1,78,062
Fees and revenue from educational institutions	97,586	1,23,797	1,46,120
Fees and revenue from markets and slaughter-houses	1,56,909	2,13,917	2,31,300
Grants and contributions from Government, local boards, &c.	4,19,794	2,83,508	6,45,980
Other sources of revenue	3,14,418	4,17,162	4,52,433
Total	24,36,994	28,41,509	34,54,637
Expenditure.			
General administration	2,03,547	2,47,917	2,65,877
Conservancy	5,36,059	7,15,071	9,49,534
Hospitals and dispensaries	2,60,605	3,09,074	3,39,160
Public works	3,99,709	4,55,972	5,73,528
Education	3,17,259	3,46,822	3,90,223
Other items of expenditure	7,38,213	9,32,303	8,81,753
Total	24,55,392	30,07,159	34,00,075

TABLE XIII

STATISTICS OF POLICE, MADRAS PRESIDENCY

	1881.	1891.	1901.	1904.
Supervising Staff.				
District and Assistant Superintendents . . .	46	46	61	58
Inspectors	420	382	383	388
Subordinate Staff.				
Sub-Inspectors and European constables . . .	148	51	68	71
Head constables and sergeants	2,700	2,462	2,573	2,657
Constables	22,993	18,089	19,503	21,243
Rural police (*ghāt talaiyāris*) paid from the police budget	427	174	104	104
Total cost of the force Rs.	39,73,460	38,05,217	44,28,363	47,77,336

NOTE.—Besides the force shown above, there are rural police (*talaiyāris*) who are controlled by the Revenue department and are paid from other than Police funds. These numbered 23,701 in 1903-4.

TABLE XIV

STATISTICS OF JAILS, MADRAS PRESIDENCY

	1881.		1891.		1901.		1904.	
Number of Central jails . . .	7		7		7		7	
Number of District jails . . .	25		15		10		10	
Number of Subsidiary jails . .	300		308		303		304	
Average daily jail population :—								
(*a*) Male.								
In Central jails	5,806		5,208		7,209		6,176	
In other jails .	5,063		4,308		5,501		4,563	
(*b*) Female.								
In Central jails	213		139		152		122	
In other jails .	319		164		158		115	
Total	11,401		9,819		13,020		10,976	
Rate of jail mortality per 1,000 .	39		35		22		16	
	Rs.	a.	Rs.	a.	Rs.	a.	Rs.	a.
Expenditure on jail maintenance .	7,59,645	0	6,63,215	0	8,95,248	0	7,18,145	0
Cost per prisoner .	71	11	67	11	68	12	65	7
Profits on jail manufactures . .	94,821	0	66,269	0	1,39,953	0	1,32,652	0
Earnings per prisoner . .	8	15	6	12	10	12	12	1

NOTE.—The last four items for the year 1881 exclude subsidiary jails.

TABLE XV

Colleges, Schools, and Scholars, Madras Presidency

Class of institutions.	1880–1.			1890–1.			1900–1.			1903–4.		
	Number of institutions.	Scholars. Males.	Scholars. Females.	Number of institutions.	Scholars. Males.	Scholars. Females.	Number of institutions.	Scholars. Males.	Scholars. Females.	Number of institutions.	Scholars. Males.	Scholars. Females.
Public.												
Arts colleges	25	1,559	...	35	3,200	5	41	3,247	32	40	4,203	37
Professional colleges	3	162	...	5	510	8	6	632	4	6	45	12
Secondary schools—												
Upper secondary	84	4,311	38	178	24,604	2,548	172	34,799	2,505	195	50,070	2,857
Lower secondary	436	15,642	377	637	25,649	17,714	560	34,887	18,935	567	41,464	19,548
Primary schools—												
Upper primary	12,293	272,619	31,790	17,885	442,969	62,311	5,164	200,066	47,791	5,299	224,647	54,310
Lower primary							15,141	327,945	45,825	14,758	344,756	48,823
Training-schools	29	688	125	70	1,174	253	74	1,257	355	76	1,280	377
Other special schools	8	486	11	29	1,993	199	57	3,116	811	67	3,109	653
Private.												
Advanced	...	...	...	131	3,952	122	246	5,373	104	291	6,556	92
Elementary	...	...	...	3,058	52,398	4,555	5,465	101,829	11,711	5,472	107,791	12,430
Total	12,878	295,467	32,341	22,028	556,449	87,715	26,926	722,151	128,073	26,771	784,621	139,139

TABLE XV A

RESULTS OF UNIVERSITY EXAMINATIONS, MADRAS PRESIDENCY

	1880-1.	1890-1.	1900-1.	1903-4.
Passes in				
Matriculation	1,131	2,381	2,427	1,521
First Arts	423	740	730	1,067
B.A. degree examination—				
English language division	113	230	488	580
Second language division			516	579
Science division		316	449	535
M.A.	5	6	19	12
L.T.	...	7	Written 70 Practical 51	45 51
B.L.	7	39	141	66
M.L.	2	1	1	1
L.M. & S.	8	17	...	5
M.B. & C.M.	2	1	...	6
M.D.	...	...	...	...
B.C.E. or B.E.	1	1	Civil 3 Mechanical 3	4 3

NOTE.—These figures show all the results at the Madras University, including students from outside the Presidency.

TABLE XV B

EDUCATIONAL FINANCE, MADRAS PRESIDENCY

	Expenditure on institutions maintained or aided by public funds from				Total.
	Provincial revenues.	District and municipal funds.	Fees.	Other sources.	
	Rs.	Rs.	Rs.	Rs.	Rs.
Arts and Professional colleges: 1900-1	4,35,888	1,727	2,67,822	1,54,122	8,59,559
1903-4	4,12,023	...	3,29,341	1,35,622	8,76,986
Training and special schools: 1900-1	2,16,332	90,313	23,755	96,476	4,26,876
1903-4	3,06,147	44,332	28,134	1,14,011	4,92,624
Secondary boys' schools: 1900-1	2,31,668	66,130	8,86,683	3,59,854	15,44,335
1903-4	2,54,858	64,736	10,61,076	3,25,166	17,05,836
Primary boys' schools: 1900-1	1,61,023	6,86,998	4,26,370	3,86,588	16,60,979
1903-4	2,74,269	9,25,981	4,28,745	4,35,394	20,64,389
Girls' schools: 1900-1	2,72,403	9,039	88,158	3,94,157	7,63,757
1903-4	3,63,067	5,878	87,937	3,87,427	8,44,309
Total 1900-1	13,17,314	8,54,207	16,92,788	13,91,197	52,55,506
Total 1903-4	16,10,364	10,40,927	19,35,233	13,97,620	59,84,144

NOTE.—The expenditure on 'Unaided' and 'Private' institutions is excluded.

TABLE XVI

Statistics of Hospitals, Lunatic Asylums, and Vaccination, Madras Presidency

	1881.	1891.	1901.	1904.
Hospitals, &c.				
Number of civil hospitals and dispensaries	255	432	*480	*512
Average daily number of—				
(*a*) In-patients	1,927	2,470	2,923	2,857
(*b*) Out-patients	10,619	18,447	28,313	31,283
Income from—				
(*a*) Government payments . Rs.	2,79,736	3,65,914	4,31,127	5,58,646
(*b*) Local and Municipal payments . Rs.	4,62,235	7,12,286	9,40,586	11,28,703
(*c*) Fees, endowments, and other sources Rs.	51,163	59,686	1,27,031	1,39,261
Expenditure on—				
(*a*) Establishments Rs.	3,85,975	5,54,162	7,78,641	8,53,353
(*b*) Medicines, diet, buildings, &c. . Rs.	3,92,279	5,84,505	7,10,138	9,67,037
Lunatic Asylums.				
Number of asylums	3	3	3	3
Average daily number of—				
(*a*) Criminal lunatics	61	145	146	150
(*b*) Other lunatics	290	469	417	449
Income from—				
(*a*) Government payments . Rs.	59,587	1,35,898	94,786	98,841
(*b*) Fees and other sources . Rs.	16,855	6,499	29,208	40,381
Expenditure on—				
(*a*) Establishment . Rs.	28,212	30,577	38,946	43,567
(*b*) Diet, buildings, &c. Rs.	33,060	1,04,615	58,893	73,421
Vaccination.†				
Population among whom vaccination was carried on	30,868,504	35,651,577	38,227,818	38,227,818
Number of successful operations	523,165	852,416	1,078,173	1,128,341
Ratio per 1,000 of population	17	24	28	29
Total expenditure on vaccination . Rs.	1,56,656	2,04,955	2,57,975	2,63,421
Cost per successful case Rs.	0 4 9	0 3 10	0 3 10	0 3 9

* Includes the Residency Hospital, Trivandrum.

† Excludes vaccination in cantonments and dispensaries and by medical subordinates, for which complete statistics are not available.

MOUNTAINS, LAKES, RIVERS, CANALS, HISTORIC AREAS, ETC.

Ghāts, The (etymologically, 'a pass through a mountain,' or 'landing-stairs from a river'; in this case the 'passes' or 'landing-stairs' from the coast to the inner plateau).—Two ranges of mountains, forming the eastern and the western walls which support the triangular table-land of Southern India. The Eastern Ghāts run in fragmentary spurs and ranges down the east side of the Peninsula, receding inland, and leaving broad tracts between their base and the coast. The Western Ghāts form the great sea-wall for the west side of the Peninsula, with only a narrow strip between them and the shore. At one point they rise in precipices and headlands out of the ocean, and truly look like colossal 'landing-stairs' from the sea. The Eastern and the Western Ghāts meet at an angle in the Nīlgiris, and so complete the three sides of the interior table-land. The inner plateau has an elevation seldom exceeding 2,000 to 3,000 feet. Its best-known hills are the NĪLGIRIS ('blue mountains'), which contain the summer capital of Madras, Ootacamund (7,000 feet). The highest point is Anaimudi peak in Travancore State (8,837 feet), while Dodabetta in the Nīlgiri District reaches 8,760 feet. This wide region of highlands sends its waters chiefly to the eastern coast. The drainage from the northern edge of the three-sided table-land enclosed by the Ghāts falls into the Ganges. The Narbadā runs along the southern base of the Vindhyas which form that edge, and carries their drainage due west into the Gulf of Cambay. The Tāpti flows almost parallel to the Narbadā, a little to the southward, and bears to the same gulf the waters from the SĀTPURĀ Hills. But from this point, proceeding southwards, the Western Ghāts rise into a high unbroken barrier between the Bombay coast and the waters of the inner table-land. The drainage has therefore to make its way right across India to the eastwards, now twisting round hill ranges, now rushing down the valleys between them, until the rain which the Bombay sea-breeze drops upon the Western Ghāts finally falls into the Bay of Bengal. In this way the three great rivers of the Madras Presidency—the Godāvari, Kistna, and Cauvery—rise in the mountains overhanging the Bombay

coast, and traverse the whole breadth of the central table-land before they reach the ocean on the eastern shores of India.

The entire geography of the two coasts of the Peninsula is determined by the characteristics of these two mountain ranges. On the east, the country is comparatively open, and everywhere accessible to the spread of civilization. It is here that all the great kingdoms of Southern India fixed their capitals. Along the west, only a narrow strip of lowland intervenes between the barrier range and the seaboard. The inhabitants are cut off from communication with the interior, and have been left to develop a civilization of their own. Again, the east coast is a comparatively dry region. Except in the deltas of the great rivers, the crops are dependent upon a local rainfall which rarely exceeds 40 inches in the year. The soil is poor, the general elevation high, and the mountains are not profusely covered with forest. In this region the chief aim of the Forest department is to preserve a sufficient supply of trees for fuel.

On the west all these physical conditions are reversed. The rivers are mere hill-torrents, but the south-west monsoon brings an unfailing rainfall in such abundance as to clothe even the hill slopes of the southern portion with a most luxuriant vegetation. The annual fall all along the coast from Surat to Malabar averages 100 inches, which increases to 300 inches high up among the mountains. What the western coast loses in regular cultivation it gains in the natural wealth of its primaeval forests, which display the most magnificent scenery in all India and supply most valuable timber.

(For further information see GHĀTS, EASTERN, and GHATS, WESTERN.)

Ghāts, Eastern.—The triangular table-land of Southern India is flanked and upheld by two ranges of mountains, which run roughly parallel to its eastern and western seaboard and eventually meet in the high plateau of the Nīlgiris. These are known by the generic names of the Eastern and Western Ghāts, though various portions of them bear local appellations. The Eastern Ghāts are a disjointed line of small confused ranges which begin in Orissa, pass into Ganjām, the northernmost District of the Madras Presidency, and run through a greater or less extent of all the Districts which lie between Ganjām and the Nīlgiri plateau. They are about 2,000 feet in elevation on an average, and their highest peaks are less than 6,000 feet. In Ganjām and Vizagapatam they run close to the shore of the Bay of Bengal, but as they travel southwards they

recede farther inland, and leave a stretch of low country from 100 to 150 miles wide between their easternmost spurs and the sea. To the west of them lies a level upland plain, averaging from 1,000 to 2,000 feet in height, one section of which is known as the DECCAN.

The Eastern Ghāts belong to no one geological formation, and the rocks of which they consist vary in structure and origin with the country through which they pass. The various sections of the range, indeed, differ greatly in other characteristics also. In the Agency tracts of the three northernmost Districts, Ganjām, Vizagapatam, and Godāvari, the range consists of a confused tangle of low and very feverish hills, which have an annual rainfall of from 50 to 80 inches, and are covered with a sparse forest valuable only for the *sāl* (*Shorea robusta*) and teak it contains. In these inhospitable hills, parts of which go by the local name of the MĀLIAHS, dwell several backward hill tribes which are not met with elsewhere, such as the Khonds, who almost within living memory practised human sacrifice to secure favourable crops; the Savaras, who still use bows and arrows; the shy Koyis of the Godāvari Agency; and other smaller communities. The chief peak in this part of the range is MAHENDRAGIRI in Ganjām, which is close on 5,000 feet above the sea.

Farther south, in Kurnool District, the range widens out to form the NALLAMALAI HILLS. Here the rainfall is only from 30 to 40 inches annually, the forest is more sparse, and the peaks are less bold than in the Agencies, scarcely ever exceeding 3,000 feet. Malaria still infests them, however, and they are likewise inhabited by primitive people, the Chenchus of the Nallamalais differing altogether ethnologically from the dwellers in the plains below them.

Still farther southwards, in Cuddapah, the Eastern Ghāts are known as the PĀLKONDA HILLS, and by other local names. Here they are less malarious, though uninhabited, and the forest growth upon them has changed and contains much of the valuable red-sanders tree (*Pterocarpus santalinus*).

In North Arcot, Salem, and Coimbatore the range is very broken and contains no well-marked lines, until in the last-named District the BILIGIRI-RANGAN HILLS, which lie close to the Nīlgiri plateau, are reached.

Few rivers rise in the range. In the north, where the rainfall is heaviest, the RUSHIKULYA and the Lāngulya and one or two considerable tributaries of the Godāvari have their sources among its valleys, but farther southwards no streams of im-

portance flow from it. It is not usually a watershed. The various great rivers which rise in or near the moister Western Ghāts—the GODĀVARI, KISTNA, PENNER, PONNAIYĀR, and CAUVERY—have all forced their way through the many gaps which occur in its long course.

Ghāts, Western.—A range of mountains about 1,000 miles in length, forming the western boundary of the Deccan and the watershed between the rivers of Peninsular India. The Sanskrit name is Sahyādri. The range, which will be treated here with reference to its course through Bombay, Mysore and Coorg, and Madras, may be said to begin at the Kundaibāri pass in the south-western corner of the Khāndesh District of the Bombay Presidency, though the hills that run eastward from the pass to Chimtāna, and overlook the lower Tāpti valley, belong to the same system. From Kundaibāri (21° 6′ N. and 74° 11′ E.) the chain runs southward with an average elevation which seldom exceeds 4,000 feet, in a line roughly parallel with the coast, from which its distance varies from 20 to 65 miles. For about 100 miles, up to a point near Trimbak, its direction is somewhat west of south, and it is flanked on the west by the thickly wooded and unhealthy table-land of Peint, Mokhāda, and Jawhār (1,500 feet), which forms a step and a barrier between the Konkan lowlands and the plateau of the Deccan (about 2,000 feet). South of Trimbak the scarp of the western face is more abrupt; and for 40 miles, as far as the Mālsej pass, the trend is south by east, changing to south by west from Mālsej to Khandāla and Vāgjai (60 miles), and again to south-by-east from thence until the chain passes out of the Bombay Presidency into Mysore near Gersoppa (14° 10′ N. and 74° 50′ E.). On the eastern side the Ghāts throw out many spurs or lateral ranges that run from west to east, and divide from one another the valleys of the Godāvari, Bhīma, and Kistna river systems. The chief of these cross-ranges are the SĀTMĀLAS, between the Tāpti and Godāvari valleys; the two ranges that break off from the main chain near Harischandragarh and run south-eastwards into the Nizām's Dominions, enclosing the triangular plateau on which Ahmadnagar stands, and which is the watershed between the Godāvari and the Bhīma; and the Mahādeo range, that runs eastward and southward from Kamālgarh and passes into the barren uplands of Atpādi and Jath, forming the watershed between the Bhīma and the Kistna systems. North of the latitude of Goa, the Bombay part of the range consists of eocene trap and basalt, often capped with laterite, while farther

In the Bombay Presidency.

south are found such older rocks as gneiss and transitional sandstones. The flat-topped hills, often crowned with bare wall-like masses of basalt or laterite, are clothed on their lower slopes with jungles of teak and bamboo in the north; *jāmbul* (*Eugenia Jambolana*), *ain* (*Terminalia tomentosa*), and *nāna* (*Lagerstroemia parviflora*) in the centre; and teak, blackwood, and bamboo in the south.

On the main range and its spurs stand a hundred forts, many of which are famous in Marāthā history. From north to south the most notable points in the range are the Kundaibāri pass, a very ancient trade route between Broach and the Deccan; the twin forts of Sālher and Mulher guarding the Bābhulna pass; TRIMBAK at the source of the holy river Godāvari; the Thal pass by which the Bombay-Agra road and the northern branch of the Great Indian Peninsula Railway ascend the Ghāts; the Pimpri pass, a very old trade route south between Nāsik and Kalyān or Sopāra, guarded by the twin forts of Alang and Kulang; Kalsūbai (5,427 feet), the highest peak in the range; Harischandragarh (4,691 feet); the Nāna pass, a very old route between Junnar and the Konkan; Shivner, the fort of Junnar; Bhīmashankar, at the source of the Bhīma; Chākan, an old Musalmān stronghold; the Bhor or Khandāla pass, by which the Bombay-Poona road and the southern branch of the Great Indian Peninsula Railway enter the Deccan, and on or near which are the caves of Kondāne, Kārli, Bhāja, and Bedsa; the caves of Nādsur and Karsāmbla below the Vāgji pass; the forts of Sinhgarh and Purandhar in the spurs south of Poona; the fort of Raigarh in the Konkan, and of Pratāpgarh between the new Fitzgerald *ghāt* road and the old Pār pass; the hill station of MAHĀBALESHWAR (4,717 feet) at the source of the Kistna; the fort and town of Sātāra; the Kumbhārli pass leading to the old towns of Pātan and Karād; the Ambā pass, through which runs the road from Ratnāgiri to Kolhāpur; the forts of Vishalgarh and Panhāla; the Phonda pass, through which runs the road from Deogarh to Nipāni; the Amboli and the Rām passes, through which run two made roads from Vengurla to Belgaum; Castle Rock, below which passes the railway from Marmagao to Dhārwār; the Arbail pass on the road from Kārwār to Dhārwār; the Devīmane pass on the road from Kumta to Hubli; and the GERSOPPA FALLS on the river Sharāvatī.

In Mysore and Coorg.

On leaving the Bombay Presidency, the Western Ghāts bound the State of Mysore on the west, separating it from the Madras District of South Kanara, and run from Chandragutti

(2,794 feet) in the north-west to Pushpagiri or the Subrahmanya hill (5,626 feet) in the north of Coorg, and continue through Coorg into Madras. In the west of the Sāgar *tāluk*, from Govardhangiri to Devakonda, they approach within 10 miles of the coast. From there they trend south-eastwards, culminating in Kudremukh (6,215 feet) in the south-west of Kadūr District, which marks the watershed between the Kistna and Cauvery systems. They then bend east and south to Coorg, receding to 45 miles from the sea. Here, too, numerous chains and groups of lofty hills branch off from the Ghāts eastwards, forming the complex series of mountain heights south of Nagar in the west of Kadūr District. Gneiss and hornblende schists are the prevailing rocks in this section, capped in many places by laterite, with some bosses of granite. The summits of the hills are mostly bare, but the sides are clothed with magnificent evergreen forests. *Ghāt* roads to the coast have been made through the following passes: Gersoppa, Kollūr, Hosangadi, and Agumbi in Shimoga District; Būndh in Kadūr District; Manjarābād and Bisāle in Hassan District.

In the Madras Presidency.

In the Madras Presidency the Western Ghāts continue in the same general direction, running southwards at a distance of from 50 to 100 miles from the sea until they terminate at Cape Comorin, the southernmost extremity of India. Soon after emerging from Coorg they are joined by the range of the EASTERN GHĀTS, which sweeps down from the other side of the Peninsula; and at the point of junction they rise up into the high plateau of the NĪLGIRIS, on which stand the hill stations of OOTACAMUND (7,000 feet), the summer capital of the Madras Government, COONOOR, WELLINGTON, and KOTAGIRI, and whose loftiest peaks are DODABETTA (8,760 feet) and MAKURTI (over 8,000).

Immediately south of this plateau the range, which now runs between the Districts of Malabar and Coimbatore, is interrupted by the remarkable Pālghāt Gap, the only break in the whole of its length. This is about 16 miles wide, and is scarcely more than 1,000 feet above the level of the sea. The Madras Railway runs through it, and it thus forms the chief line of communication between the two sides of this part of the peninsula. South of this gap the Ghāts rise abruptly again to even more than their former level. At this point they are known by the local name of the ANAIMALAIS, or 'elephant hills,' and the minor ranges they here throw off to the west and east are called respectively the NELLIAMPATHIS and the PALNI HILLS. On the latter is situated the sanitarium of KODAIKĀNAL. There-

after, as they run down to Cape Comorin between the Madras Presidency and the Native State of Travancore, they resume their former name.

North of the Nīlgiri plateau the eastern flank of the range merges somewhat gradually into the high plateau of Mysore, but its western slopes rise suddenly and boldly from the low coast. South of the Pālghāt Gap both the eastern and western slopes are steep and rugged. The range here consists throughout of gneisses of various kinds, flanked in Malabar by picturesque terraces of laterite which shelve gradually down towards the coast. In elevation it varies from 3,000 to 8,000 feet above the sea, and the ANAIMUDI PEAK (8,837 feet) in Travancore is the highest point in the range and in Southern India. The scenery of the Western Ghāts is always picturesque and frequently magnificent, the heavy evergreen forest with which the slopes are often covered adding greatly to their beauty. Large game of all sorts abounds, from elephant, bison, and tiger to the Nīlgiri ibex which is found nowhere else in India.

Considerable areas on the Madras section of the range have been opened up by European capital in the last half-century for the cultivation of tea, coffee, cinchona, and cardamoms. Its forests are also of great commercial value, bamboos, blackwood (*Dalbergia latifolia*), and teak growing with special luxuriance. The heavy forest with which the range is clothed is the source of the most valuable of the rivers which traverse the drier country to the east, namely the Cauvery, Vaigai, and Tāmbraparni; and the waters of the Periyār, which until recently flowed uselessly down to the sea on the west, have now been turned back by a tunnel through the range and utilized for irrigation on its eastern side.

Before the days of roads and railways the Ghāts rendered communication between the west and east coasts of the Madras Presidency a matter of great difficulty; and the result has been that the people of the strip of land which lies between them and the sea differ widely in appearance, language, customs, and laws of inheritance from those in the eastern part of the Presidency. On the range itself, moreover, are found several primitive tribes, among whom may be mentioned the well-known Todas of the Nīlgiris, the Kurumbas of the same plateau, and the Kādars of the Anaimalais. Communications across this part of the range have, however, been greatly improved of late years. Besides the Madras Railway already referred to, the line from Tinnevelly to Quilon now links up the two opposite shores of the Peninsula, and the range is also

traversed by numerous *ghāt* roads. The most important of these latter are the Charmadi *ghāt* from Mangalore in South Kanara to Mudgiri in Mysore; the Sampāji *ghāt* between Mangalore and Mercara, the capital of Coorg; the roads from Cannanore and Tellicherry, which lead to the Mysore plateau through the Perumbādi and Peria passes, and the two routes from Calicut to the Nīlgiri plateau up the Karkūr and Vayittiri-Gūdalūr *ghāts*.

Nallamalais ('Black Hills').—The name locally given to a section of the EASTERN GHĀTS which lies chiefly in the three westernmost *tāluks* of Kurnool District, Madras, between 14° 26′ and 16° 0′ N. and 78° 39′ and 79° 23′ E. The range runs nearly north and south for 90 miles from the KISTNA river (which flows among its northernmost spurs in a deep and wildly picturesque channel) to the PENNER in Cuddapah District, and averages from 1,500 to 2,000 feet in elevation. The highest points in it are Bhairani Konda (3,048 feet), just north-west of Cumbum, and Gundla Brahmeswara (2,964 feet), due west of that place. Down the slopes of the latter runs a torrent, which ends in a beautiful waterfall descending into a sacred pool called Nemaligundam ('peacock pool'). Many other peaks of the range are between 2,000 and 3,000 feet above the sea. Geologically, the rocks of which it is composed belong to what is known as the Cuddapah system, a series some 20,000 feet in thickness. They consist of quartzites (and some sandstone), overlaid with slaty formations which are unfortunately too irregular in cleavage and soft in texture to be of economic value. The exact stratigraphy of these rocks was little understood for many years, owing to the difficulty of geological research in a country which was for the most part overgrown with forest and ill supplied with roads, but Dr. King of the Geological Survey eventually unravelled the tangle. A striking feature of the system is the great foldings into which the rocks were forced by a period of great strain and stress acting from the east. In some places great thicknesses have been thrust over westward and completely inverted.

The Nallamalais contain several plateaux, and more than one attempt has been made by Europeans to settle upon them; but, though they are healthy for much of the year, the great scarcity of water and the prevalence of fever after the rains in June will probably always render them undesirable places of residence. The low plateau of SRĪSAILAM was inhabited in the days of old, and the remains of ancient towns, forts, temples, reservoirs, and wells testify to the prosperity of the residents.

At present the only people who live upon the range are the forest tribe of the Chenchus, who dwell in small clusters of huts dotted about it. They used to subsist largely upon fees paid them by the adjoining villagers for guarding the footpaths and tracks across the hills. After the present police force was organized these fees were less regularly paid; and the tribe now lives by breeding cattle and sheep, collecting honey and other products of the jungle, or serving as watchmen in the forest.

Practically the whole range is covered with unbroken forest, but except in places on the western slopes, where there is some sandstone, little of this is really dense or large. The annual rainfall is usually less than 40 inches, and the rocks are so deeply fissured that much of it runs away as soon as it falls. There is thus too little moisture for the growth of large trees. The characteristic of the timber on the range is its hardness. *Terminalia*, *Hardwickia*, *Pterocarpus*, and *Anogeissus* are the commonest species. Teak has been planted but did not flourish. Now that the railway from Guntakal to Bezwāda crosses the range, great quantities of timber, firewood, and bamboos are carried by it to the neighbouring Districts.

The railway runs along the pass known as the Nandikanama, or 'bull pass,' which is so called from a temple to Siva's bull Nandi built near a thermal spring not far from its western extremity. It is a considerable engineering work, several long tunnels and high viaducts being necessary. It follows the line taken by the chief of the two cart-roads over the range, the route connecting Kurnool District with the coast, which is 18 miles in length and rises to about 2,000 feet above the sea. The other road, which goes by way of the Mantralamma or Dormal pass farther north, is much less important.

Shevaroy Hills.—A small detached range in Salem District, Madras, lying between 11° 43′ and 11° 57′ N. and 78° 8′ and 78° 27′ E., and occupying an area of 150 square miles. They are divided into an eastern and a western section by the deep valley of the Vāniār stream. The western portion consists of three plateaux, of which the Green Hills, the highest point of which is 5,410 feet above the sea, is the largest; and on the southern extremity of the eastern portion, at an elevation of 4,500 feet, stands the well-known sanitarium of YERCAUD. The valley between the two was clearly once a deep lake fed by the Vāniār, but the stream gradually cut through the barrier which held back the water and the lake became the bed of the river.

Geologically, the range consists of Archaean plutonic rocks of the charnockite series, and these have weathered into the rugged masses characteristic of that family.

There are three routes up to the hill. From the Mallāpuram station on the Madras Railway a neglected but easy *ghāt* leads for 19 miles to Yercaud, and from the Kadiampatti station a steeper way reaches the same place in 11 miles. But the usual route is up the *ghāt* on the side facing Salem town. This begins 5 miles from the town and is about 6 miles long. A good cart-road has recently been constructed up it.

The upper levels of the Green Hills plateau are covered with grass, and on no part of the Shevaroys is there any considerable growth of forest. The rainfall, though nearly double that of the surrounding low country, averages only 63 inches annually and is scarcely sufficient to support heavy timber. The temperature is most equable, rarely exceeding 75° or falling below 60°, and the soil and climate are peculiarly favourable to smaller vegetation, which grows with the greatest exuberance and adds largely to the natural beauty of this picturesque range. Up to 3,000 feet there is a zone of bamboo, and on the higher levels some teak, blackwood, and sandal-wood are found. Among the imported trees and plants which thrive readily may be mentioned the pear, peach, apple, guava, citron, orange, lime, lemon, strawberry, and potato; and the Australian acacias, eucalyptus, and casuarina do well. There are 9,000 acres planted with coffee, most of it under European management.

The indigenous inhabitants of the range are the Malaiyālis ('hill men') or Vellālas. They are not an aboriginal tribe, but are without doubt Tamils from the low country who either emigrated or fled to the hills within comparatively recent times, and their customs present few points of ethnological interest. Their own tradition is that they came from Conjeeveram at the time when the Musulmāns became the dominant power in the South. They speak Tamil and are nominally Hindus, but have very vague ideas of the principles of their faith. They are a timid and harmless people, who now live chiefly by primitive cultivation or by working on the coffee estates.

Palni Hills.—A range of hills in Madura District, Madras, connected with the Western Ghāts and forming part of that mountain system. They lie between 10° 1′ and 10° 26′ N. and 77° 14′ and 77° 52′ E., running out from the main line of the Ghāts (which here consists of the Anaimalai and Travancore Hills) in a north-easterly direction. They are

about 54 miles in length and about 15 miles wide on the average, occupying an area of 800 square miles. They get their English name from the town of PALNI, which lies just to the north of them; the native appellation is Varāhagiri, or 'boar hill.' They consist of two well-marked divisions, the more eastern of which averages from 3,000 to 4,000 feet in height and is known as the Lower Palnis, while the western has a mean elevation of 7,000 feet and in one place, Vembādi Shola Hill, rises to 8,218 feet above the sea. The favourite sanitarium of KODAIKĀNAL, which stands on the southern edge of the central portion of the range, is about 7,200 feet in elevation.

The Palnis consist entirely of Archaean plutonic rocks of the charnockite family. On the south side these often end in steep, sheer precipices, but on the north they slope more gradually down to the plains.

In general appearance the upper ranges greatly resemble the Nīlgiris. They have the same grass-covered downs with the same thick, green woods nestling in their many wrinkles, and variety in the scenery is afforded by the same bold peaks raising their shoulders above the surrounding lower levels. The annual rainfall is 65 inches, compared with an average of 47 inches at OOTACAMUND; but it is more evenly distributed, so that Kodaikānal avoids the three arid months at the beginning of the year which wither the vegetation at Ootacamund, but at the same time is less damp and boasts a clearer atmosphere. Though slight frosts are common in December and January, the climate is also milder on the whole.

The forests on the higher levels contain some teak and blackwood, and on the lower slopes *Pterocarpus* is common; but difficulties of transport are considerable. English fruit and vegetables grow readily at Kodaikānal, and on the Lower Palmis nearly 6,000 acres are cultivated with coffee, mostly with the aid of European capital. There is only one regular *ghāt* up the hills, and that is the bridle-path which leads to Kodaikānal from the south. The foot of this is 30 miles from the station of Ammayanāyakkanūr on the South Indian Railway, and visitors always go to the sanitarium by this route. The hills on that side are so steep that the construction of a cart-track up them would present considerable difficulties; 'traces' have been made for roads to the summit from other directions, but hitherto lack of funds has prevented their construction.

The Palnis are inhabited by several indigenous communities,

but these are immigrants from the low country who do not differ in physical characteristics from their castemen who still reside on the plains. The most noteworthy of them are the Paliyans, who are also found on the Anaimalais and the Western Ghāts where they run through Tinnevelly. They are described as a miserable jungle-folk, who have no settled habitations, reside in crevices in rocks or the rudest of huts, and live upon leaves, roots, vermin, and honey.

The other inhabitants of the range subsist mainly by cultivation. Rice is one of the chief crops; and the skill with which the mountain streams are diverted so as to irrigate successions of narrow terraces excavated down the slopes of the hills is a strong testimony to the ingenuity and industry of the people.

Anaimalais.—The Anaimalais, or 'elephant hills' (10° 15′ to 10° 31′ N., 76° 51′ to 77° 20′ E.), are a section of the WESTERN GHĀTS situated in the south of Coimbatore District, Madras, and in the adjoining Native State of Travancore, and are perhaps the most striking range in the South of India. Like the rest of the Coimbatore Hills and the Nīlgiris, they consist of gneiss, with broad bands of felspar and quartz crossing its foliations. They are divided into a lower and a higher range. The latter consists of a series of plateaux 7,000 feet in elevation, running up into peaks of over 8,000 feet. These are covered with rolling downs and dark evergreen forest, and are cut off from one another by deep valleys containing some magnificent scenery[1]. They cover 80 to 100 square miles and extend into the Travancore Hills, the best known of them, the Anaimudi ('elephant's forehead') plateau, which contains the ANAIMUDI peak, 8,837 feet, the highest point in Southern India, being entirely within the territory of that State. Two other well-known peaks are the Akkā ('elder sister') and Tangachi ('younger sister'). The climate of these plateaux resembles that of the Nīlgiris.

The lower range of the Anaimalais lies to the west and has an average elevation of 3,000 to 4,500 feet. Along the slopes here, 18,500 acres in twenty blocks have recently been opened out for coffee-growing; and the department of Public Works has constructed a cart-road and bridle-path through this area which, in addition to serving the coffee estates, is expected to facilitate the transport of the rarer hard woods which grow upon the upper levels of this part of the hills

[1] Sketches of this, with some account of the range, will be found in Cleghorn's *Forests and Gardens of South India*, 1861.

and have hitherto been inaccessible. But the chief interest of this lower range lies in its forest. It contains the celebrated teak belt. This varies in height from 1,500 to 3,000 feet, and contains most of the timbers usual in deciduous forests of the same elevation as well as the best teak in the Presidency. In 1895 a teak-tree was cut here which was 124 feet high and 23 feet in girth and contained between 500 and 600 cubic feet of workable timber. Before 1848 large quantities were exported from this belt for use in the dockyards at Bombay, and the forests were so overworked that when systematic control was introduced felling was stopped for some years. It has now been resumed both in the Government forests and in an adjoining area of 27 square miles which has been leased from the Nambidi of Kollangod, a Malabar proprietor, for an annual payment of Rs. 5,000, and is known as the Tekkadi leased forest. The forest station, Mount Stuart, is in the Torakadavu Valley next to this. In 1889-90 a tramway worked by bullocks was laid for 7 miles through the leased forest to the top of the *ghāt* road leading to Pollāchi through the Anaimalai village, where the timber dépôt is situated. Elephants drag the timber to the tramway, which then brings it to a wire rope-way made in 1899 from the head of the *ghāt* to the low country, and also to a saw-mill, driven by a Pelton wheel fed by the Torakadavu stream, which was put up at the same time. The rope-way is over a mile in length with a fall of 1,000 feet, and carries loads up to half a ton. Much of the timber is trammed to the saw-mill, cut up, and then trammed to the rope-way, by which it is run down to the low country. Heavy logs go down the *ghāt* road by cart.

The forest museum at Coimbatore contains an excellent collection of the various woods, fibres, &c., found in the Anaimalais. Game is plentiful, the hills affording shelter to bison (*gaur*), *sāmbar*, tigers, leopards, and bears, and, on the high range, to the rare Nīlgiri ibex (*Hemitragus hylocrius*), which is not found anywhere in India north of the Nīlgiris. There are also numerous elephants, considerable numbers of which are annually caught in pits by the Forest department and trained to timber-dragging or otherwise disposed of.

The only inhabitants of the Anaimalais are a few hundred jungle-folk—Kādans ('jungle-men'), Muduvans, Pulaiyans, and Malasars ('lords of the hills')—who live in rude hamlets on the slopes, and subsist chiefly by collecting the minor produce of the forests, such as cardamoms, rattans, wax, and

honey. The Kādans have two customs worth notice. Both men and women chip their incisor teeth into points in the manner followed by some of the tribes of the Malay Archipelago and the Congo country, and they climb trees by driving a succession of bamboo pegs into the bark and lashing them together in exactly the manner adopted by the Dyaks of Borneo. They are also clever at collecting honey from combs built on the faces of the cliffs, letting themselves down from above by ladders made of a series of rattan loops.

Biligiri-Rangan Hills.—A range in Southern India which originates (12° 27′ N. and 76° 11′ E.) in the south-east of Mysore District, Mysore State, and after running north and south for nearly 10 miles, passes into the Coimbatore District of Madras. The peak from which the range is named is 5,091 feet high, with an old temple of Biligiri Ranga at the top. The slopes are well wooded, teak and sandal-wood being found among the trees; and long grass, often 10 to 18 feet high, grows everywhere. The only inhabitants are the wild aboriginal Sholigas, who live in isolated hamlets containing five or six wattled huts. Elephants, bison, and *sāmbar* are found, and occasional tigers, leopards, and bears.

Chilka Lake.—A shallow inland gulf, situated between 19° 28′ and 19° 56′ N. and 85° 6′ and 85° 86′ E., in the south-east corner of Purī District, Bengal, and in the extreme south extending into the Madras District of Ganjām. A long sandy ridge, in places little more than 200 yards wide, separates it from the Bay of Bengal, with which its only connexion is by a single narrow mouth which intersects this ridge towards its centre. On the west and south the lake is walled in by lofty hills, while to the north it loses itself in endless shallows, sedgy banks, and islands just peeping above the surface, formed year by year from the silt which the rivers bring down. The lake spreads out into a pear-shaped expanse of water 44 miles long, of which the northern half has a mean breadth of about 20 miles, while the south tapers into an irregularly curved point, barely averaging 5 miles wide. Its smallest area is 344 square miles in the dry season, increasing to about 450 during the rainy season; and the average depth is from 3 to 5 feet, scarcely anywhere exceeding 6 feet. The bed is a very few feet below the high-water level of the sea, although in some parts it is slightly below low-water mark. The narrow tidal stream, which rushes through the neck connecting the lake with the sea, suffices to keep the water distinctly salt during the dry months from December to June. But once the rains have set in, and

the Bhārgavī and Dayā rivers come pouring down upon its northern extremity, the sea-water is gradually driven out and the Chilka becomes a fresh-water lake. This changeable mass of water forms one of a series of lacustrine formations down the western shores of the Bay of Bengal, the result of a perpetual war going on between the rivers and the sea—the former struggling to find vent for their water and silt, the latter repelling them with its sand-laden currents.

The Chilka may be regarded as a gulf of the original Bay of Bengal. On the south, a bold, barren spur of hills runs down to the coast; on the north the land-making rivers have pushed out their rounded mouths and flat deltas into the ocean. Nor has the sea been idle. Meeting and overmastering the languid river-discharge that enters the Chilka, it has joined the two extremities with a bar of sand, and thus formed a lake. The delicate process of land-making from the river silt at the north-east end of the lake is slowly but steadily going on, while the bar-building sea is still busily at work. Old documents show that a century ago the neck of land dividing the lake from the sea was only from half a mile to a mile broad in places where it is now two miles, and the opening in the bar, which was a mile wide in 1780 and had to be crossed in large boats, was described forty years later as choked up. Shortly before 1825 an artificial mouth had to be cut; and although this also rapidly began to silt up, it remained, as late as 1837, more than three times its present breadth. The difficulty in maintaining an outlet from the Chilka forms one of the chief obstacles to utilizing the lake as an escape for the floods that desolate the delta. Engineers report that, although it would be easy and cheap to cut a channel, it would be very costly and difficult to keep it open; and that each successive mouth would speedily choke up and share the fate of its predecessors.

The scenery of the Chilka is very varied, and in parts exceedingly picturesque. In the south and west hill ranges bound its shores; and in this part it is dotted with a number of small rocky islands. Proceeding northwards, the lake expands into a majestic sheet of water. Half-way across is Nalbana, literally 'the reed forest,' an island about 5 miles in circumference, scarcely anywhere rising more than a few inches above water-level. This island is altogether uninhabited, but is regularly visited by parties of thatchers from the mainland, who cut the reeds and high grasses with which it is covered. On the eastern side of the lake lie the islands of Pārikūd, with new silt formations behind and now partially

joined to the narrow ridge of land which separates the Chilka from the sea. At some places they emerge almost imperceptibly from the water; at others, they spread out into well-raised rice-fields. Their northern extremity slopes gracefully down to the lake like an English park, dotted with fine trees, and backed by noble masses of foliage. Waterfowl of all kinds are very abundant in every part of the lake. Beyond the northern end of Pārikūd, the lake gradually shallows until it becomes solid ground, for here the Purī rivers empty themselves and the process of land-making is going on. The northern shores of the Chilka comprise the *parganas* of Sirai and Chaubīskūd, and it is these tracts which have to bear the greatest suffering in times of general inundation in Purī.

At its southern extremity in the Madras District of Ganjām stands the village of Rambha. Before Ganjām town was overwhelmed with fever and when it was still the capital of the District which bears its name, this used to be a favourite resort of its European residents in the hot months.

A tidal canal 7 miles long connects the lake with the Rushikulya river and is navigable throughout the year. Large quantities of grain are imported from Orissa across the lake and along this canal, and salt is exported in return. The boats employed are old flat-bottomed vessels, which are poled against the wind or drift before it under crazy mat sails.

Colair Lake (*Kolleru* or *Kolār*).—This, the only large natural fresh-water lake in the Madras Presidency, lies in Kistna District between 16° 32′ and 16° 47′ N. and 81° 4′ and 81° 23′ E. Half lake, half swamp, it is a great shallow depression, roughly elliptical in shape, which was doubtless originally part of the old Bay of Bengal. On either side of it the great rivers GODĀVARI and KISTNA pushed their deltas farther and farther out into the sea, until the southward extremity of the one joined the northward limit of the other, and the arm of land thus formed cut off the Colair depression from the salt water. The streams which flow into it now keep its waters fresh, but the silt they carry is rapidly filling it up and in course of time it will inevitably disappear. The extent of the Colair Lake varies greatly. During the monsoon it exceeds 100 square miles, but in the dry season it shrinks considerably, and sometimes, as in the drought of 1900, the lake dries up altogether. Reclamations and embankments are annually reducing its dimensions.

To the north of it, from 20 to 50 miles away, lie the highlands of the EASTERN GHĀTS, and the drainage from about

2,000 square miles of these is passed into the lake by three mountain torrents called the Budimeru, the Tamileru, and the Weyyeru. This water leaves the lake by two outlets known as the Perantala Kanama and Juvir Kanama, and passes into the tidal stream of the Upputeru ('salt river'), which conveys it to the sea. Local legends say that the Upputeru was cut to drain the lake by an army which was endeavouring to capture the fort of Kolleti Kota on one of its islands, but was hampered by the depth of the water; and that Perantala Kanama was named after the daughter of the general, who was sacrificed by her father to ensure the success of his attack.

The Colair Lake is fairly well stocked with fish and abounds in waterfowl of every description. A regular export trade in bird-skins existed at one time, but the birds were so mercilessly pursued that they have greatly decreased in numbers. In the lake are many fertile and highly cultivated islands, which are included in 26 villages. The cultivation in these (over 10,000 acres) is watered from the delta channels of the Kistna river; but the cultivators own no proprietary rights in their lands, holding them on annual leases which may be revoked if any scheme of irrigation necessitates such a course.

Pulicat Lake.—A shallow salt-water lagoon, about 37 miles in length and from 3 to 11 in breadth, situated on the shore of the Bay of Bengal in Nellore District, Madras, between 13° 24′ and 13° 47′ N. and 80° 2′ and 80° 16′ E. It is separated from the sea by the long, narrow, sandy island of SRĪHARIKOTA, and by the spit of sand on which stands the town of PULICAT, after which it is named. Like the CHILKA LAKE, it was probably formed by the antagonism between the sand-bearing currents of the Bay and the silt-laden streams which flow into it. There is shoal-water for some distance to seaward, and this shoal probably grew gradually into a long sand-bar which checked the flow of the land streams. The lake contains several islands (on which much lime is made from the shells found upon them), and is connected with the sea by openings north of Pulicat and elsewhere, and so is influenced by the tide. It is seldom more than 6 feet deep in the dry season. About thirty years ago a dam was built across the middle of it from Srīharikota through the island of Venād to the mainland, in order to reduce its extent and thus check the smuggling of the natural salt which forms along its shores. This has turned the northern half into a sandy waste. The BUCKINGHAM CANAL enters the lake south of Pulicat and utilizes it for about 6 miles.

Rushikulya.—River in Ganjām District, Madras. It rises in the Rushimālo hill (from which it takes its name), near Dāringabādi in the Chinnakimedi Māliahs, in 19° 55′ N. and 84° 8′ E., and runs south-east to Aska and thence south-east and east into the Bay of Bengal at Ganjām town, in 19° 22′ N. and 85° 4′ E. Its length is about 115 miles, and the towns on its banks are Surada, Aska, Purushottapur, and Ganjām. It is spanned at Aska by a fine masonry bridge of nineteen arches. It is joined by the Pathama near Surada, by the Bhāguvā in Dhārākota Estate, by the Mahānadī at Aska, and by the Godāhaddo in the Berhampur *tāluk*. The river dries up in the hot season.

At Aska and at Pratāpuram near Purushottapur, where its channel turns northwards for a short distance, a large festival is held every year in February or March, when thousands of people bathe in its waters.

The river is utilized for irrigation by means of a series of works known collectively as the Rushikulya project. This was begun in 1884, has already cost 48 lakhs, and is still being extended. It renders the water of the Rushikulya and its tributary, the Mahānadī, available for cultivation in the Berhampur *tāluk* and one corner of Goomsur. The main dam across the Rushikulya is at Jannimilli, between Surada and Aska, above the junction with the Mahānadī. Its catchment at this point is 650 square miles. To intercept flood-water which would otherwise run to waste, a tributary has been dammed higher up and a reservoir formed at Surada, from which a supply can be let down to the Jannimilli dam. The Mahānadī has been treated in the same way, there being a dam at Mādhavaborida, 6 miles below Russellkonda. Its catchment at this point is 870 square miles. A subsidiary reservoir, fed by dams across two tributaries of the Mahānadī, has been formed just above Russellkonda. From the Mādhavaborida dam a channel 20 miles long, called the Mahānadī canal, runs through a corner of the Goomsur *tāluk* (irrigating 6,500 acres) into the Rushikulya above the Jannimilli dam, and thus still further increases the supply available there. From the Jannimilli dam the main Rushikulya canal, 54 miles long, runs south through several *zamīndāris* and on into the Berhampur *tāluk*. It has sixteen distributaries, with an aggregate length of 136 miles. The cultivable area commanded by the project is 142,000 acres (of which 106,000 are in the Berhampur *tāluk*), and the extent at present irrigable is 102,000 acres. In 1903–4, 90,000 acres of first crop were watered by it and 1,000 acres of second

crop. There is seldom sufficient water for much second crop. The gross and net revenue earned in 1903-4 was Rs. 97,000 and Rs. 35,000. The project is technically classed as protective and not productive (it is the only work so classed in the Presidency) and is not remunerative, the profits on the capital outlay being at present only 0·71 per cent. Neither the river nor the canals are used for navigation. It is under contemplation to construct another reservoir at Pattupūr, by damming the Godāhaddo river, to supplement the supply available.

Godāvari River.—A great river of Southern India, which runs across the Deccan from the Western to the Eastern Ghāts; for sanctity, picturesque scenery, and utility to man surpassed only by the Ganges and the Indus; total length about 900 miles; estimated area of drainage basin, 112,000 square miles. The source of the river is on the side of a hill behind the village of Trimbak, in Nāsik District, Bombay Presidency, about 50 miles from the shore of the Indian Ocean. At this spot is an artificial reservoir reached by a flight of 690 steps, into which the water trickles drop by drop from the lips of a carven image, shrouded by a canopy of stone. From first to last the general direction of the river is towards the south-east.

Course in the Bombay Presidency.

It passes by Nāsik town, and then separates Ahmadnagar District from the State of Hyderābād, its total course in the Bombay Presidency being about 100 miles. Above Nāsik it flows along a narrow rocky bed, but farther east the banks are lower and more earthy. Fifteen miles below Nāsik it receives on the right the Dārna from the hills of Igatpuri, and 17 miles farther down, on the left, the Kādva from Dindori. At the latter confluence, at Nander, the stream is dammed for irrigation. Near Nevāsa it receives on the right bank the combined waters of the Pravara and the Mulā, which rise in the hills of Akola, near Harischandragarh.

In Hyderābād and the Central Provinces.

After passing the old town of Paithan on its left bank, the Godāvari now runs for a length of about 176 miles right across the Hyderābād State, receiving on its left bank the Pūrna, which flows in near Kararkher in Parbhani District, and on the right the Mānjra near Kondalwādi in Nander, while near Dharmsāgar in the Chinnūr *tāluk* of Adilābād District it receives, again on the right, the Māner. Below Sironchā it is joined by the Prānhita, conveying the united waters of the Wardha and Wainganga; and from this point it takes a marked south-easterly bend, and for about 100 miles divides Chānda District and the Bastar Feudatory State of the Central Provinces from the Karīmnagar and Warangal Districts of Hyderābād.

Thirty miles below the confluence of the Prānhita, the Godāvari receives the Indrāvati river from Bastar State, and lower down the Tāl. The bed of the Godāvari where it adjoins the Central Provinces is broad and sandy, from 1 to 2 miles in width, and broken by rocks at only two points, called the first and second barriers, each about 15 miles long. In 1854 it was proposed to remove these barriers, and a third one on the Prānhita, with the object of making a waterway from the cotton-growing Districts of Nāgpur and Wardhā to the sea; but in 1871, after very considerable sums had been expended, the project was finally abandoned as impracticable. One of the dams erected in connexion with this project still stands, with its locks and canal, at Dummagudem in the north of the Godāvari District of Madras. Although the Godāvari only skirts the Central Provinces, it is one of the most important rivers in their drainage system, as it receives through the Wardhā and Waingangā the waters of a portion of the Sātpurā plateau and of the whole of the Nāgpur plain.

In the Madras Presidency.

Some distance below Sironchā the Godāvari leaves the Central Provinces behind and for a while forms the boundary between the Godāvari District of the Madras Presidency and the Hyderābād State, and in this part of its course it is joined on the left bank by a considerable tributary, the Sabarī. Thence it falls to the sea through the centre of the old Godāvari District, which has recently been divided, mainly by the course of the river, into the Districts of Godāvari and Kistna. At the beginning of its course along Madras territory, the river flows placidly through a flat and somewhat monotonous country; but shortly afterwards it begins to force its way through the Eastern Ghāts, and a sudden change takes place. The banks become wild and mountainous, the stream contracts, and at length the whole body of the river pours through a narrow and very deep passage known as 'the Gorge,' on either side of which the picturesque wooded slopes of the hills rise almost sheer from the dark water. Once through the hills, the river again opens out and forms a series of broad reaches dotted with low alluvial islands (*lankas*), which are famous for the tobacco they produce. The current here is nowhere rapid. At Rājahmundry, where the river is crossed by the East Coast line of the Madras Railway on a bridge more than 1½ miles in length, it varies from 4 to 11 feet a second. In floods, however, the Godāvari brings down an enormous volume of water, and embankments on both of its banks are necessary to prevent it from inundating the surrounding country.

A few miles below Rājahmundry the river divides into two main streams, the Gautami Godāvari on the east and the Vasishta Godāvari on the west, which run down to the sea through a wide alluvial delta formed in the course of ages by the masses of silt which the river has here deposited. It is in this delta that the waters of the river are first utilized on any considerable scale for irrigation. At Dowlaishweram, above the bifurcation, a great 'anicut' or dam has been thrown across the stream, and from this the area of the whole delta has been irrigated. *See* GODĀVARI CANALS.

The Godāvari is navigable for small boats throughout the Godāvari District. Vessels get round the anicut by means of the main canals, of which nearly 500 miles are also navigable, and which connect with the canals of the Kistna delta to the south. Above the anicut there are several steamboats belonging to Government, but, as already observed, the attempts to utilize the upper Godāvari as an important waterway have proved a failure.

The coast of the Godāvari delta was the scene of some of the earliest settlements of Europeans in India, the Dutch, the French, and the English having all established factories there. The channels of the river which led to these have now greatly silted up. The little French settlement of YANAM still remains, but the others—Bandamūrlanka, Injaram, Madapollam, and Pālakollu—now retain none of their former importance.

Sacred character of the river.

The peculiar sacredness of the Godāvari is said to have been revealed by Rāma himself to the *rishi* Gautama. The river is sometimes called Godā, and the sacred character especially attaches to the Gautami mouth. According to popular legend, it proceeds from the same source as the Ganges, by an underground passage; and this identity is preserved in the familiar name of Vriddha-Gangā. But every part of its course is holy ground, and to bathe in its waters will wash away the blackest sin. The great bathing festival, called *pushkaram*, celebrated in different years on the most sacred rivers of India, is held every twelfth year on the banks of the Godāvari at Rājahmundry. The spots most frequented by pilgrims are the source at Trimbak; the town of Bhadrāchalam on the left bank, about 100 miles above Rājahmundry, where stands an ancient temple of Rāmachandra, surrounded by twenty-four smaller pagodas; Rājahmundry itself; and the village of Kotipalli, on the left bank of the eastern mouth.

Godāvari Canals.—The head of the delta of the Godāvari is at DOWLAISHWERAM, in Godāvari District, Madras, 40 miles

as the crow flies from the Bay of Bengal. At this point the river bifurcates into two main streams, the Gautami Godāvari on the east and the Vasishta Godāvari on the west, which flow through a wide fan-shaped area of alluvial soil, cutting it into three portions called respectively the Eastern, Western, and Central deltas, the land in which falls gradually to the sea at the rate of about a foot a mile. Above the bifurcation a great masonry dam has been thrown across the main stream, and from this are led to the three deltas irrigation canals which branch and branch again so as to command every portion of them. The proposal thus to utilize the water of the river for irrigation was taken in hand by Sir Arthur (then Major) Cotton in 1845, and begun under his supervision in 1847. The work was practically completed in two years. It consists of a dam running straight across the river, composed of four sections, connected by islands in the bed of the stream, which are altogether 3,982 yards, or 2¼ miles, in length. The dam is formed of two parallel walls, 42 feet apart from centre to centre, which are built on brick wells. The upper wall is 10 feet high and the lower 7 feet, and the intervening space is filled in with sand covered by a rubble masonry apron, 20 feet of which is horizontal and the remainder curved to meet the lower wall. The top of this apron is faced with cut stone, and along the crest are automatic iron shutters 2 feet high. Below the lower wall is a loose stone apron 150 to 250 feet wide.

Three separate canal systems take off from this dam—one on either flank and one in the centre for the Central delta. Together, these supply water to 662,000 acres and comprise 493 miles of main canals, which are all navigable, and 1,929 miles of smaller distributary channels. The capital cost of all the delta works to the end of 1903-4 has been 135 lakhs, and the gross revenue in that year was 33 lakhs. Deducting working expenses, the net revenue due to the scheme returns a profit of between 17 and 18 per cent. on the capital outlay. Next to the dam, the most important engineering work in the system is the Gunnavaram aqueduct, which extends the irrigation and navigation systems of the Central delta across a branch of the river called the Vainateyam Godāvari to the Nagaram island on the seaward face of the delta. Full particulars of the whole scheme will be found in Mr. G. T. Walch's *Engineering Works of the Godāvari Delta* (Madras, 1896).

Kistna River (Sanskrit *Krishna*, 'the black').—A great river of Southern India, which, like the Godāvari and Cauvery, flows almost across the Peninsula from west to east. In

traditional sanctity it is surpassed by both these rivers, and in actual length by the Godāvari; but the area of its drainage basin, including its two great tributaries, the Bhīma and Tungabhadra, is the largest of the three. Its total length is about 800 miles, and the total area of its catchment basin about 97,000 square miles.

Course in Bombay Presidency. The Kistna rises about 40 miles from the Arabian Sea (17° 59′ N. and 73° 38′ E.) in the Western Ghāts just north of the hill station of Mahābaleshwar, and flows southwards, skirting the eastern spurs of the hills, past Karād (Sātāra District), where it receives on the right bank the Koyna from the western side of the Mahābaleshwar Hills, and Sāngli, where it receives the waters of the Vārna, also from the west, until it reaches Kurundvād, when the Pānchgangā joins it, again on the right bank. The river then turns eastward and flows through Belgaum District, the States of the Southern Marāthā Agency, and Bijāpur, into the Nizām's Dominions, after a course of about 300 miles in the Bombay Presidency. In Bijāpur District it is joined on the right bank by the Ghatprabha and the Malprabha from the Western Ghāts. Near the hills the channel is too rocky and the stream too swift for navigation, but its waters are largely used for irrigation in Sātāra District and in the more open country to the south-east. In Belgaum and Bijāpur its banks of black soil or laterite are 20 to 50 feet high, especially on the south side, and the stream forms many islands covered with *babūl* bushes.

In Hyderābād State. On entering the Nizām's Dominions (at Echampet in Raichūr District) the Kistna drops from the table-land of the Deccan proper down to the alluvial *doābs* of Shorāpur and Raichūr. The fall is as much as 408 feet in about 3 miles. In time of flood a mighty volume of water rushes with a great roar over a succession of broken ledges of granite, dashing up a lofty column of spray. The first of the *doābs* mentioned above is formed by the confluence of the BHĪMA, which brings down the drainage of Ahmadnagar, Poona, and Sholāpur; the second by the confluence of the TUNGABHADRA, which drains the north of Mysore and the 'Ceded Districts' of Bellary and Kurnool. At the point of junction with the Tungabhadra in the eastern corner of Raichūr District, the Kistna again strikes upon British territory, and forms for a considerable distance the boundary between the eastern portion of Hyderābād and the Kurnool and Guntūr Districts of Madras. Its bed is here for many miles a deep, rocky channel, with a rapid fall, winding in a north-easterly direction through the spurs of the Nallamalai

range and other smaller hills. At Wazīrābād in Nalgonda District it receives its last important tributary, the Mūsi, on whose banks stands the city of Hyderābād. The total course of the river within and along the State of Hyderābād is about 400 miles.

On reaching the chain of the Eastern Ghāts, the river turns sharply south-eastwards and flows for about 100 miles between the Kistna and Guntūr Districts (formerly the Kistna District) of Madras direct to the sea, which it enters by two principal mouths. It is in this last part of its course that the Kistna is for the first time largely utilized for irrigation. From the point where it turns southwards the rate of fall of its channel drops rapidly from an average of $3\frac{1}{2}$ feet a mile to $1\frac{1}{2}$ feet, and eventually, as it nears the sea, to as little as from 7 to 9 inches. The enormous mass of silt it carries—which has been estimated to be sufficient in flood-time to cover daily an area of 5 square miles to a depth of 1 foot—has consequently in the course of ages been deposited in the form of a wide alluvial delta which runs far out into the sea and slopes gradually away from either bank of the river, with an average fall of 18 inches to the mile. At Bezwāda, at the head of this delta, the Kistna runs through a gap 1,300 yards in width in a low range of gneissic hills, and here a great masonry dam has been thrown across the river and turns its waters into a network of irrigation channels which spread throughout the delta. (See Kistna Canals.) Immediately below the dam the river is also crossed by the East Coast line of the Madras Railway on a girder-bridge of twelve spans of 300 feet. The flood velocity of the Kistna at this point is about $6\frac{1}{2}$ miles an hour, and the flood discharge has been estimated to reach the enormous figure of 761,000 cubic feet a second.

In Madras Presidency.

The Kistna is too rapid for navigation above the dam, but between Bezwāda and its mouth sea-going native craft ply upon it for about six months in the year. The main irrigation canals are also navigable, and connect the Kistna District with its northern neighbour the Godāvari, and, by means of the Buckingham Canal, with the country to the southwards and the city of Madras.

Kistna Canals.—The canal system of the Kistna delta depends upon the masonry dam which has been thrown across the river at the head of the delta at Bezwāda in Kistna District, Madras, where the stream flows through a gap 1,300 yards wide in a low range of hills. This point is about 45 miles from the sea in a direct line, and below it the river flows

in a channel which is at a somewhat higher level than the surrounding country. The dam was begun in 1853, subsequent to that across the GODĀVARI, and was finished in 1854. Its length from wing to wing is 3,714 feet, or between 5 and 6 furlongs, and it rises 20 feet above the bed of the river. It is built on masonry wells, is vertical on the down-stream side and slopes gradually upwards on the other. At the top it is 6 feet wide and has a coping of cut stone. Below it is an apron of rough stone 250 feet wide, part of which is held in place by a retaining wall built right across the stream. On either flank are scouring sluices to keep free from silt the heads of the canals which take off from the dam. The system includes ten principal canals, and they and their branches lead to every part of the delta, and connect on the north with the GODĀVARI CANALS and on the south with the BUCKINGHAM CANAL. There are 372 miles of main canal, 307 of which are navigable, and 1,630 miles of smaller distributaries. In 1903-4, 616,760 acres, or 964 square miles, of Government land (in addition to a large area in *zamīndāris*, for which there are no accurate statistics) were irrigated by this system. The total capital cost of it amounted to 149 lakhs and the net revenue was 19 lakhs, representing an interest on the capital of nearly 13 per cent. Full particulars of it will be found in Mr. G. T. Walch's *Engineering Works of the Kistna Delta* (Madras, 1899).

Tungabhadra.—A river of Southern India, the chief tributary of the Kistna, which is fed by all the streams of the northern half of Mysore State. It is formed by the union of the twin rivers Tunga and Bhadra, which rise together in the Western Ghāts at Gangāmūla, on the frontier of Kadūr District, Mysore. The Tunga runs north-east to beyond Sringeri, and then takes a sharp turn north-west to Tīrthahalli, whence its course is again north-east past Shimoga town. The Bhadra runs east to the western base of the Bābā Budan Hills, and then north past Benkipur. The two unite at Kūdali in the north of Shimoga District (75° 43′ N. and 14° E.). The united river forms the boundary between Mysore and Bombay, and then between Bombay and Madras. Turning north-east, it forms the boundary between Madras and the Nizām's Dominions, and bending east in the north of Bellary District, it joins the Kistna, beyond Kurnool, after a total course of about 400 miles. From Shimoga District the Tungabhadra receives the Choradi or Kumadvati and the Varadā on the west, and the Haridrā on the south. From

Chitaldroog District it receives the Chinna Hagari and the Vedāvati or Hagari on the south.

The Tungabhadra is bridged for the trunk road at Harihar, where it is also crossed by the railway from Hubli to Bangalore, and again at Hosūru and Rāmpuram in Bellary District, where the lines from Hubli to Bellary and from Madras to Bombay pass over it.

There are thirty-eight small irrigation dams on the Tunga and the Bhadra in Mysore, but the bed of both rivers is for the most part rocky and consequently unsuitable for navigation. The manner in which the country rises rapidly away from either side of the Tungabhadra has also hitherto prevented it from being greatly utilized for irrigation in either the Nizām's Dominions or the Madras Presidency, though in the former State its left bank is dammed for a distance of about 30 miles. The kings of the ancient dynasty of Vijayanagar (1336–1565), the ruins of which city still stand on its bank near the little village of Hampi in Bellary District, threw across it, above and below their capital, a number of dams made of huge blocks of uncemented stone of which ten are still used for watering narrow strips of land along the southern edge of the river. A few miles above the point where the Tungabhadra falls into the Kistna, a dam also turns part of the water into the KURNOOL-CUDDAPAH CANAL. The river is, however, perennial and comes down in frequent heavy freshes which cannot be utilized by any of these works and are not required for irrigation in the delta of the Kistna lower down. The Irrigation Commission of 1901–3 accordingly recommended the reinvestigation of a project, which has been several times mooted in different shapes, for constructing a reservoir upon the river in Bellary District. It is calculated that a masonry dam about 145 feet long near Hospet, where the river cuts through some low hills, would hold back the water for a distance of nearly 40 miles, and form a lake with an area of 160 square miles and a capacity four and a half times as great as that of the Assuān reservoir on the Nile. From this a canal would be led to Bellary, tunnelling in its course through some rocky hills, and thence across the Hagari, through the watershed between this river and the Penner, and finally into the bed of the latter river. This canal and its distributaries would command portions of the Bellary, Kurnool, Anantapur, Cuddapah, and Nellore Districts of Madras. Detailed estimates for this great scheme, the cost of which is roughly estimated at eight crores, are now under preparation.

The origin of the river is thus accounted for in local legend. A demon having seized the earth and carried it into the lower world, Vishnu became incarnate as a boar, and plunging into the ocean, brought it up again. Resting after this exertion on the Varāhaparvat or 'boar mountain,' the perspiration trickling off his left tusk became the Tunga, and that from the right the Bhadra.

Hagari (or *Vedāvatī*).—A river of Southern India, formed by two streams, the Veda and Avati, which rise in the Bābā Budan Hills (Mysore) and after feeding the large Ayyankere and Madagkere tanks, thereby irrigating much land, unite to the east of Kadūr (76° 6′ N. and 13° 32′ E.). The combined stream then runs north-east through Chitaldroog District, where it is dammed to form the great Māri Kanave reservoir, which is 34 square miles in extent, with 70 miles of distributary channels. East of Hiriyūr, the river, which now takes the name of Hagari, turns north and passes into the Bellary District of Madras, the eastern portion of which it drains. It flows into the Tungabhadra by Hālekota after a course of 280 miles.

Penner (the *Uttara Pinākini* or Northern Pennār).—A river of Southern India which rises on Channarāyan-betta, to the north-west of Nandidroog in the Kolār District of Mysore, and running north-west past Goribidnūr, enters the Anantapur District of Madras, at one point again crossing Mysore in a projecting part of the Pāvugada *tāluk* (Tumkūr District). Some distance north of Anantapur it turns to the east, and passing through Cuddapah and Nellore Districts falls into the sea below Nellore. Its tributaries from Mysore are the Jayamangali, Chitrāvati, and Pāpaghni.

In Anantapur District the Penner runs for the most part in a wide and sandy bed. It comes down in sudden freshes (generally in October and November) for two or three days at a time, and then as quickly dries up again. In Cuddapah it is joined on its right bank by the Chitrāvati, and the two streams have forced a passage for themselves through the picturesque gorge of GANDIKOTA, about a mile long and 300 feet deep. Lower down, the Pāpaghni flows into it, and thereafter, as it winds through the Eastern Ghāts, its course again becomes wild and beautiful.

The river enters Nellore District through a narrow gap in the Ghāts near Somasila, and thenceforward is for the first time rendered useful for irrigation. From Somasila to Sangam, a distance of 25 miles, it waters about 5,000 acres from inun-

dation channels. At Sangam it is crossed by a dam, built in 1886, which is 4,072 feet long. On the left bank of the river, this dam supplies the great Kanigiri reservoir, and thus irrigates 86,000 acres, and a channel is being constructed from it on the right bank which will fill the Nellore reservoir and water 10,000 more. Lower down the river, at Nellore, a dam constructed in 1855 was repaired and brought into its present shape by Sir A. Cotton in 1858. The channels from it supply 64,000 acres of land on the right bank. Altogether the river irrigates 155,000 acres in this District, yielding a revenue of $3\frac{1}{4}$ lakhs, or about $5\frac{1}{3}$ per cent. upon the capital of 61 lakhs which has been expended. The great Tungabhadra project now in contemplation proposes to turn much of the surplus water of the Tungabhadra into the Penner, and this water would be utilized in Nellore District by constructing a high dam across the narrow gap at Somasila and forming a huge reservoir there. It is calculated that channels from this on both sides of the river would command 500,000 acres.

The Penner is crossed by the Madras Railway at Penneru in Anantapur District, and by the East Coast line of the same railway at Nellore, near its mouth.

Ponnaiyār (or *Ponniār*, the *Dākshina Pinākini* or Southern Pennār).—A river of Southern India, which rises in Channarāyan-betta, north-east of Nandidroog in the Kolār District of Mysore, and runs through the east of Bangalore District, forming the large Jangamkote and Hoskote tanks. Leaving Mysore to the east of Sarjapur, it runs south-east through the Salem District of Madras (where it is crossed by the Madras Railway) and, some distance north of Dharmapuri, turns east to South Arcot District, and falls into the sea to the north of Cuddalore. Its length in Mysore is about 50 miles, where about 86 per cent. of its water is stored for agricultural purposes. It flows through the Madras Presidency for about 200 miles, and the area of its drainage basin is 6,200 square miles. The river is bridged near Cuddalore, and also at the point (near Panruti) where it is crossed by the South Indian Railway. Its only considerable tributary is the Pāmbār, which joins it on the left bank in Salem District.

In South Arcot the Ponnaiyār runs in a wide sandy bed between low banks. At one time it seems to have flowed down the Malattār ('barren river'), which is now merely a small branch into which it occasionally spills at high floods; for ancient Tamil works speak of Tiruvennanallur, which is now on the southern bank of the Malattār, as lying on the

southern edge of the Ponnaiyār. The river is very liable to sudden high freshes, and serious floods occurred in 1874, 1884, and 1898, those of 1884 being the worst. The Ponnaiyār and the neighbouring Gadilam river overflowed and joined, and for twenty-four hours their combined waters rushed through Cuddalore New Town to the sea. Thirteen arches of the bridge over the Ponnaiyār were swept away, and much other damage was done.

The river is not at present utilized for irrigation on any considerable scale until near the end of its course. The dam near Tirukkoyilur in South Arcot waters about 24,000 acres, from which the total revenue is Rs. 93,000. Of this, about Rs. 11,000 is due to the improvements made, representing an interest of over 4 per cent. on the capital outlay. The construction of a dam higher up the river, to supply a large area in two of the upland *tāluks* of the same District, has been suggested.

Like other large rivers, the Ponnaiyār is sacred. It is deemed especially so in the first five days of the Tamil month of Tai, when the Ganges is said to flow into it by underground ways. Festivals are then celebrated at many of the important villages along its banks.

Pālār (or *Kshīra-nadi*, the 'milk river').—A river of Southern India, which has its reputed source on Nandidroog, in the Kolār District of Mysore. From near Kaivāra it turns south-east and leaves Mysore in the east of the Bowringpet *tāluk* (Kolār). Entering the North Arcot District of Madras it bends to the north-east after descending the Ghāts, and flows into the Bay of Bengal near Sadras (Chingleput District). Its length in Mysore is about 47 miles, the entire drainage of the catchment basin, 1,036 square miles, being utilized for cultivation. Of the tanks on it the largest are Betamangala and Rāmasāgara in the Bowringpet *tāluk*, the former being the source of water-supply for the Kolār gold-fields. In Madras the length of the river is about 183 miles. There is some reason to believe that it once flowed to the sea from the valley through which now runs the Korttalaiyār, a stream which reaches the Bay of Bengal to the north of Madras City.

The chief tributaries of the Pālār are the Ponne, which joins it on the left bank in North Arcot, and the Cheyyār, which joins it on the other bank in Chingleput District. On its banks are the towns of Vāniyambādi, Vellore, Arcot, and Chingleput. The first of these was greatly damaged by a sudden flood which swept down the river in 1903, causing the

loss of hundreds of lives. Near Arcot the river is crossed by a dam built in 1857, and designed to give an improved supply to the old native channels which fed a large series of reservoirs in those parts. It was breached in 1874, but was subsequently restored, and is now 2,634 feet in length. The dam and the improved channels cost 21 lakhs and add to the supply of about 270 existing reservoirs, some of which are in Chingleput District; but they do not water any great extent of fresh land, and if the receipts from the irrigation which existed before they were constructed be deducted they are worked at a great loss. In Chingleput District about 50,000 acres are watered from the river, which feeds a series of tanks.

The Pālār is crossed by railway bridges at Mailpati (North Arcot District), and between Padalam and Kolatūr in Chingleput.

Vellār ('white river').—A river in Madras, formed by the junction of two streams called the Vasishtanadī and the Swetanadī, which rise in Salem District and receive the drainage of the Pachaimalai, Kollaimalai, and Kalrāyan Hills. They unite on the southern border of South Arcot District, and the Vellār constitutes for some distance the boundary between Trichinopoly and South Arcot, and then flows due eastwards across the latter into the Bay of Bengal at Porto Novo in 11° 32′ N. and 79° 46′ E. Its total length is about 135 miles and its catchment area 2,660 square miles. Much of its course is very tortuous, and it is continually eating away its steep banks on one side or other. Near Porto Novo its channel was straightened by the department of Public Works in 1848. Its chief tributary is the Manimuktānadī, which rises on the eastern slope of the Kalrāyan Hills. There are several dams across this, and two others have rendered the water of the main river available for irrigation in South Arcot. The upper of these is at Pelāndorai and the lower at Settiyātoppu (Shatiatope). Upon the latter is built the bridge which carries the road from Madras to the south. These dams irrigate 10,000 and 31,000 acres, and the net revenue due to improvements is Rs. 19,000 and Rs. 80,000. This represents a return on the capital outlay of 3 per cent. and nearly 37 per cent. respectively. Two more dams across the river have been proposed.

The Vellār is affected by the tide for 7 or 8 miles from its mouth, and for part of this distance it is navigable by small boats of 4 tons burden at all seasons of the year. Two miles south of its mouth it is supposed to meet, out at sea, the

waters of the Coleroon, and once a year in the Tamil month Māsi (February–March) the idol from Srīmushnam is taken in procession to the shore opposite this propitious spot and the people bathe in the sea there.

General course and sanctity.

Cauvery (*Kāveri*; the Χάβηρος of the Greek geographer Ptolemy).—A great river of Southern India, famous alike for its traditional sanctity, its picturesque scenery, and its utility for irrigation. Rising on the Brahmagiri, a hill in Coorg, high up amid the Western Ghāts (12° 25′ N. and 75° 34′ E.), it flows in a generally south-east direction across the plateau of Mysore, and finally pours itself into the Bay of Bengal in the Madras District of Tanjore. Total length, about 475 miles; estimated area of drainage basin, 28,000 square miles. It is known to devout Hindus as *Dakshin Gangā*, or the 'Ganges of the South,' and the whole of its course is holy ground. According to the legend preserved in the Agneya and Skanda Purānas, there was once born upon earth a girl named Vishnumāya or Lopāmudra, the daughter of Brahmā; but her divine father permitted her to to be regarded as the child of a mortal called Kavera-muni. In order to obtain beatitude for her adoptive father, she resolved to become a river whose water should purify from all sin. Hence it is that even the holy Gangā resorts underground, once in the year, to the source of the Cauvery, to purge herself from the pollution contracted from the crowd of sinners who have bathed in her waters. At Tatla Kāveri, where the river rises, and at Bhāgamandala, where it receives its first tributary, stand ancient temples frequented annually by crowds of pilgrims in the month of Tulāmāsa (October–November).

Course in Coorg and Mysore.

The course of the Cauvery in Coorg is tortuous; its bed is rocky; its banks are high and covered with luxuriant vegetation. In the dry season it is fordable almost anywhere, but during the rains it swells into a torrent 20 or 30 feet deep. In this portion of its course it is joined by many tributaries—the Kakkabe, Kadanūr, Kumma-hole, Muttāramudi, Chikka-hole, and Suvarnāvati or Hāringi. Near the frontier, at the station of Fraserpet, it is spanned by a magnificent stone bridge, 516 feet in length. Soon after entering Mysore State, the Cauvery passes through a narrow gorge, with a fall of 60 to 80 feet, in the rapids of Chunchan-Katte. After this it widens to an average breadth of from 300 to 400 yards till it receives the Kabbani, from which point it swells to a much broader stream. Its bed continues rocky, so as to forbid all navigation, but its banks are bordered with a rich belt of 'wet' cultivation. In its course through Mysore the river is interrupted by no less than twelve anicuts

(dams) for the purpose of irrigation. Including irrigation from the tributaries, the total length of channels in the Cauvery system in Mysore was (1904–5) 968 miles, the area irrigated 112,000 acres, and the revenue obtained nearly 7 lakhs. The finest channel is 72 miles long, and two others each run to 41 miles. The construction of three of the principal dams is attributed to the Mysore king Chikka Deva Rājā (1672–1704).

Islands and Falls of the Cauvery.

In Mysore the river forms the two islands of SERINGAPATAM and SIVASAMUDRAM, about 50 miles apart, which vie in sanctity with the island of Srīrangam lower down in Trichinopoly District. Both islands are approached from the north by interesting bridges of native construction, composed of hewn stone pillars founded on the rocky bed of the stream, and connected by stone girders. The one at Seringapatam, about 1,400 feet long, named the Wellesley Bridge after the Governor-General, was erected between 1802 and 1804 by the famous Dīwān Pūrnaiya. That at Sivasamudram, 1,580 feet long, and called, after a Governor of Madras, the Lushington Bridge, was erected between 1830 and 1832 by a private individual, who also bridged the other arm in the same way, and was honoured with suitable rewards. The river is moreover bridged at Seringapatam for the Mysore State Railway, and at Yedatore. The first fresh in the river generally occurs about the middle of June. In August the flow of water begins to decrease, but the river is not generally fordable till the end of October.

Enclosing the island of Sivasamudram are the celebrated Falls of the Cauvery, unrivalled for romantic beauty. The river, here running north-east, branches into two channels, each of which makes a descent of 320 feet in a succession of rapids and broken cascades. The western fall is known as the Gagana Chukki ('sky spray'), and the eastern as the Bhar Chukki ('heavy spray'). The former, which is itself split by a small island, dashes with deafening roar over vast boulders of rock in a cloud of foam, the column of vapour rising from it being visible at times for miles. The eastern fall is quieter, and in the rainy season pours over the hill-side in an unbroken sheet a quarter of a mile broad. At other times the principal stream falls down a deep recess in the form of a horseshoe, and then rushes through a narrow channel, again falling about 30 feet into a large basin at the foot of the precipice. This waterfall is said to resemble the Horseshoe Fall of Niagara. The parted streams unite again on the north-east of the island and hurry on through wide and narrow gorges, one point being called the Mekedātu or 'goat's leap.'

The Cauvery has now been harnessed at Sivasamudram, the western fall being utilized for generating electricity to drive the machinery at the Kolār gold-fields, 92 miles distant, and to supply electric lighting for the city and power for a mill at Bangalore, 59 miles away. The installation, delivering 4,000 H. P. at the mines, has been in successful operation since the middle of 1902, and was increased by 2,500 H. P. in 1905. It was the first of its kind in India, and at the time of its inception one of the longest lines of electric transmission in the world.

Towns and tributaries in Mysore.

The principal towns on the river in Mysore are Yedatore, Seringapatam, and Talakād, the last named being an old capital, now almost buried under sand dunes. Crocodiles are numerous; but they have seldom been known to attack fishermen, and the natives in general stand in no dread of them. Shoals of large fish, which are held sacred, are fed daily by the Brāhmans at Rāmnāthpur and Yedatore. The Mysore tributaries of the Cauvery are: on the north, the HEMĀVATI, Lokapāvani, Shimsha, and ARKĀVATI; on the south, the LAKSHMANTĪRTHA, KABBANI, and Suvarnāvati or HONNU-HOLE.

Course in Madras.

The Cauvery enters the Presidency of Madras at the Falls of Sivasamudram, and forms the boundary between the Districts of Coimbatore and Salem for a considerable distance, until it strikes into Trichinopoly. In this part of its course, near Alambādi in Coimbatore, there is a remarkable rock in the middle of the stream which throws up a column of perpetual spray, though the water round it is to all appearances quite unbroken. It is called the 'smoking rock,' and the natives declare that the spray is due to the river pouring into an enormous chasm in its bed. Close under the historic Rock of Trichinopoly the Cauvery breaks at the island of Srīrangam into two channels (crossed by masonry road bridges), which irrigate the delta of Tanjore, the garden of Southern India. The more northerly of those channels is called the COLEROON (Kollidam); that which continues the course of the river towards the east preserves the name of the Cauvery. On the seaward face of the delta are the open roadsteads of Tranquebar, Negapatam, and French Kārikāl. In Madras the chief tributaries of the Cauvery are the BHAVĀNI, Noyil, and Amarāvati. At Erode the river is crossed by the south-west line of the Madras Railway, by means of an iron girder-bridge, 1,536 feet long with 22 spans, on piers sunk into the solid rock.

The only navigation which exists on the Cauvery is carried on in coracles of basketwork, but the Coleroon is navigable for a few miles above its mouth by vessels of 4 tons burden.

Irrigation.

Although the water of the Cauvery is utilized to a considerable extent for agriculture in Mysore, and also in Coimbatore and Trichinopoly District, it is in its delta that its value for irrigation becomes most conspicuous. At Srīrangam, just above the point where it bifurcates to form the Coleroon, the flood discharge is estimated at 313,000 cubic feet per second. The problem of utilizing this storehouse of agricultural wealth was first grappled with about the eleventh century by one of the Chola kings, who constructed a massive dam of unhewn stone, 1,080 feet long and from 40 to 60 feet broad, below the island of Srīrangam, to keep the Cauvery separate from the Coleroon and drive it towards Tanjore District. This is still in existence and is known as the 'Grand Anicut.' It has been improved by British engineers and a road bridge has been built upon it. Below it the kings of the same dynasty cut several of the chief canals of the delta, some of which still bear their names, and the Cauvery irrigation is thus less entirely due to the British Government than that in the Godāvari and Kistna deltas. When the British first came into possession of Tanjore District, in 1801, it was found that the great volume of the water-supply was then passing down the Coleroon, which runs in a straighter course and at a lower level than the Cauvery, while the Cauvery proper was gradually silting up and the irrigating channels that took off from it were becoming dry. The object of the engineering works that have been since constructed is to redress this unequal tendency, and to compel either channel to carry the maximum of water that can be put to good use. The first of these was the 'Upper Anicut' across the head of the Coleroon at the upper end of Srīrangam island, constructed by Sir Arthur Cotton between 1836 and 1838. This is 2,250 feet long, broken by islands into three sections, and was designed to increase the supply in the Cauvery. It was followed in 1845 by a regulating dam, 1,950 feet long, across the Cauvery near the Grand Anicut, to prevent too much water flowing down this latter stream. Close to it, a similar regulator was constructed in 1848 across the Vennār, one of the main branches of the Cauvery. From this point the Cauvery runs north-east and the Vennār south-east, both of them throwing off branch after branch, which in their turn split up into innumerable channels and form a vast network which irrigates the delta. At the off-take of all the more considerable of these, head-works have been constructed to control and regulate the flow. The Cauvery itself eventually enters the sea by an extremely insignificant channel. From

the Lower Anicut across that stream the Coleroon irrigates land in South Arcot as well as in Tanjore. In the three Districts of Tanjore, Trichinopoly, and South Arcot, the two rivers water 1,107,000 acres, yielding a revenue of 41 lakhs. The capital cost of the works of improvement and extension in the delta has been 28 lakhs, and the net revenue from them is 8½ lakhs, representing a return of nearly 31 per cent on the outlay.

Hemāvati (also called *Yenne-hole*).—A river of Mysore and one of the chief tributaries of the CAUVERY. It rises on the Western Ghāts in the south-west of Kadūr District, and runs south-east through the Manjarābād *tāluk* to the Coorg frontier, where, joined by some streams from the west, it turns east. Receiving the Yagachi from the north, it then winds round Hole Narsipur, and runs south to the Cauvery near Yedatore, after a course of over 160 miles. It has ten dams, from which about 145 miles of channels are drawn off, irrigating nearly 10,000 acres. The largest channels are the Srīrāmadevar north channel, 47 miles long, in Hassan District, and the Mandigere, 27 miles long, in Mysore District.

Arkāvati.—A tributary of the CAUVERY, in Mysore, about 120 miles long, having its source on Nandidroog, and flowing through Bangalore District from north to south with a slight westerly direction. The Kumudvati from the west joins it south of Nelamangala, and the Vrishabhāvati from Bangalore on the east, north of Kānkānhalli. In its upper course are some large tanks, including Hesarghatta, the source of the water-supply of Bangalore. From Sāvandurga southwards it runs mostly through a wild country, amid rocky hills and forest, and is therefore not much used for irrigation.

Vaigai.—A river in Madura District, Madras. It originates in two streams draining respectively the beautiful Kambam and Varushanād Valleys, which are formed by outliers running down from the Western Ghāts at the point where they separate Madura from Travancore State. These unite in 10° N. and 77° 31′ E.; and thereafter the Vaigai runs east by north for 50 miles, receiving much of the drainage from the upper and lower ranges of the Palni Hills, and then turns and flows in an almost straight line south-east across the centre of the District, passing on the way through Madura town, until it reaches the sea in 9° 20′ N. and 79° 1′ E., 10 miles east of Rāmnād. Its supply is most uncertain and insignificant. Even at Madura, 100 miles from its mouth, its bed is all but dry during the greater portion of the year, and at Rāmnād it is

often dry all the year round. On the other hand, it happens now and again that it is in full flood for a month together. It is dammed above Madura by the Peranai ('great dam') and the Chittanai ('little dam'), from which channels lead to land along its left and right banks respectively, but otherwise it is of little value for irrigation. The PERIYĀR PROJECT, which utilizes its bed to bring the Periyār water to the irrigable portions of the District, has, however, of recent years greatly increased the supply in the river. It is crossed at Madura by the South Indian Railway and by a causeway and a fine masonry road bridge.

Tāmbraparni.—A river in Tinnevelly District, Madras. The derivation of the name has been much discussed. One etymology is from the Sanskrit *tāmra*, 'copper,' and *varna*, 'colour,' from the colour of the sand in its bed. It rises on the slopes of the peak Agastyamalai in the Western Ghāts in 8° 37′ N. and 77° 15′ E., and after a course of some miles through this range descends to the plains in five beautiful falls at Pāpanāsam, a very sacred spot. Higher up, in the heart of the hills, it forms another fall called the Bāna-tīrtham, which is equally sacred but, being with difficulty accessible, is less frequented. From Pāpanāsam it runs eastward across Tinnevelly District, receiving as it goes a number of tributaries which, like itself, rise in the Ghāts. The chief of these is the Chittār, 45 miles long. It eventually falls into the Gulf of Manaar in 8° 40′ N. and 78° 9′ E., after a course of 70 miles, during which it drains 1,739 square miles.

The Tāmbraparni receives a supply from both monsoons, and is thus almost a perennial stream and of great use for irrigation. Eight dams cross it. Seven of these were made by former native governments and are believed to date from the fifteenth century. The eighth and lowest, at Srīvaikuntam, was suggested by Mr. Puckle, a former Collector, and was begun in 1867. It is 1,380 feet long, and feeds channels on both banks of the river, which fill a large series of tanks in which the supply was formerly precarious, and also water other land directly. The irrigation revenue has by this means been raised from Rs. 80,000 to over 2 lakhs, which gives a return of over 6 per cent. on the capital of 15 lakhs laid out on the system. The Marudūr dam, higher up the stream, irrigates on an average 30,000 acres of first and second crop, and the other six water 71,000 acres between them. One-tenth of all the irrigable area in Tinnevelly depends upon the river. Its valley is the wealthiest portion of the District,

and the land there is some of the most valuable in the Presidency.

Several of the chief towns of the District stand upon the banks of the Tāmbraparni. Five miles below Pāpanāsam are Ambāsamudram and Kallidaikurichi, opposite one another and connected by a bridge built by public subscription in 1840; 20 miles farther down Tinnevelly and Pālamcottah are similarly connected by the Sulochana bridge, built in 1844 by Sulochana Mudaliyār, a rich landowner and high official of the District; and there is a third bridge over the Srīvaikuntam dam. Near the mouth of the river is Kolkai, the first capital of the Pāndyas, the earliest seat of Dravidian civilization, and once a famous seaport. The silt from the river ruined its career as a port and it is now five miles from the sea; its place was taken by Kāyal, where Marco Polo landed, but this also silted up and the Portuguese then established Tuticorin as the chief port on this coast. The pearl and 'chank' (*Turbinella rapa*) fisheries off the mouth of the Tāmbraparni were once very famous and are frequently mentioned in early Tamil literature.

Kurnool-Cuddapah Canal.—An irrigation and navigation canal in Madras, which takes off from the Sunkesula dam across the TUNGABHADRA, 17 miles above the town of Kurnool, and runs for 190 miles through Kurnool and Cuddapah Districts into the PENNER (which is dammed at the junction), and thence to the town of Cuddapah. The canal is a product of the policy, formerly in favour, of attracting private capital and enterprise from England into the field of Indian irrigation. It was constructed by the Madras Irrigation and Canal Company, a body incorporated by Act of Parliament in 1858. This Company originally proposed to execute in the Deccan Districts and Nellore a number of other large irrigation works, the main ideas of which were in part due to Sir A. Cotton; but as it speedily fell into financial difficulties it was required first to complete this canal, and none of the others was ever begun. It worked under a guarantee from the Secretary of State of 5 per cent. on a capital of one million sterling, but by 1866 over £900,000 had been spent and the canal was still incomplete; £600,000 was then obtained from Government by debentures, but by 1872 the whole £1,600,000 had been expended and the canal was still unfinished. The undertaking was eventually bought in 1882 by the Secretary of State for £1,700,000. It has never been a success. Its alignment was faulty; its construction was defective, so that in places it will

not pass even one-half the quantity of water which it was designed to carry; and it runs through an area in which, owing to the great fertility of the soil, it pays the ryots better to raise crops without irrigation than to undertake the expensive system of cultivation which is necessary to the growing of rice or other irrigated crops. The net revenue from the work is therefore only Rs. 67,000, which is insufficient to pay even ½ per cent. on its capital cost. The navigation along it is negligible in amount. The protection it affords in bad seasons to the extremely arid area through which it runs is, however, of great importance, and when rain fails water is freely taken from it. Several projects are also under contemplation for the utilization, by branch canals, of its water in areas where it will be more readily availed of; and it may perhaps be possible to strengthen it sufficiently to enable it to pass into the Penner a supply which would augment that now derivable from this river for irrigation in Nellore District.

Buckingham Canal.—A salt-water navigation canal, tidal to a great extent wherever the river bars are open, which extends for 262 miles along the east coast of the Madras Presidency from Pedda Ganjām (15° 39′ N. and 80° 15′ E.) in Guntūr District, southwards through Madras City and on to Merkānam (12° 12′ N. and 79° 57′ E.) in South Arcot. At Pedda Ganjām it communicates with the fresh-water high-level canals of the delta system of the KISTNA river, and so with the GODĀVARI delta canals, and thus opens up water communication with the port of Cocanāda, making a total length of 462 miles of main navigable canal. The Buckingham Canal runs within three miles of the coast throughout its entire length, and many portions of it are within half a mile of the sea. It utilizes some portion of the PULICAT LAKE.

The excavation of the section from Madras City to this lake was begun as long ago as 1806 as a private enterprise, and was known, after its originator, as Cochrane's Canal. In 1837 this was taken over by Government, but up to 1876 only 5½ lakhs had been spent in extending it. It was at this time called the East Coast Canal. In the great famine of 1876–8 it was resolved to take up the completion of the undertaking as a relief work, and an expenditure of over 29 lakhs was incurred. It was renamed the Buckingham Canal after the Duke of Buckingham and Chandos, then Governor of Madras. Up to date the total capital cost has amounted to 90 lakhs. The chief difficulty in maintaining it in order was that, as it crossed the whole drainage of the country, it was extremely liable to

be silted up. Between 1883 and 1891 large expenditure was incurred in remedying this tendency. In ordinary years the traffic upon it, though it amounts to 12½ millions of tons annually, is insufficient to meet the working expenses, and a deficit of about Rs. 20,000 occurs. The railway along the coast, which has been opened since the canal was constructed, has robbed it of the long-distance traffic which it was originally designed to carry. The chief traffic along it at present is salt from the various coast factories and firewood from SRĪHARIKOTA to Madras City, but in bad seasons it is of value in connecting the two fertile deltas with the poorer country farther south. Cargo boats and boats belonging to Government and private individuals ply along it. Wharves have been constructed at intervals for their use, and there are also a series of travellers' bungalows upon the banks.

Bālāghāt ('above the Ghāts').—The name given by the Musalmāns of Bijāpur to a region in Southern India conquered by them from Vijayanagar in the seventeenth century. It comprised the north-east part of Mysore and the Bellary, Anantapur, Kurnool, and Cuddapah Districts of Madras.

Bāramahāl.—A name loosely applied in English histories to the north-eastern corner of Salem District, Madras, but no longer in use. The exact boundaries of the tract have been the subject of some discussion[1]. It apparently included the *tāluks* of Tiruppattūr, Krishnagiri, Dharmapuri, and Uttangarai in Salem, and the Kangundi *zamīndāri* in North Arcot. Though usually called Bāramahāl, the name is explained as meaning 'twelve palaces' (*mahal*), and tradition says that it was derived from the fact that twelve hills within it were fortified by local chieftains; but of the various lists of these twelve forts no two agree. The first separate ruler of the tract is supposed to have been Jagadeva Rāya, father-in-law of one of the fallen kings of Vijayanagar, to whom it was granted by the king as a reward for his heroic defence of the fort of Penukonda against a Musalmān force. Later, Jagadeva's family fell upon evil days, and the Bāramahāl passed into the possession of Haidar Alī of Mysore, whose son ceded it to the English at the partition treaty of 1792. The name soon afterwards dropped out of use.

The true Carnatic.

Carnatic (*Kannada*, *Karnāta*, *Karnātaka-desa*).—Properly, as the name implies, 'the Kanarese country.' The name has, however, been erroneously applied by modern European writers to the Tamil country of Madras, including the Telugu

[1] *Salem District Manual*, vol. i, p. 83.

District of Nellore. The boundaries of the true Carnatic, or Karnātaka-desa, are given by Wilks as

'Commencing near the town of Bīdar, in 18° 45′ N., about 60 miles north-west from Hyderābād (Deccan). Following the course of the Kanarese language to the south-east, it is found to be limited by a waving line which nearly touches Adoni, winds to the west of Gooty, skirts the town of Anantapur, and passing through Nandidroog, touches the range of the Eastern Ghāts; thence pursuing their southern course to the mountainous Pass of Gazzalhati, it continues to follow the abrupt turn caused by the great chasm of the western hills between the towns of Coimbatore, Pollāchi, and Pālghāt; and, sweeping to the north-west, skirts the edges of the precipitous Western Ghāts, nearly as far north as the sources of the Kistna; whence following first an eastern and afterwards a north-eastern course, it terminates in rather an acute angle near Bīdar, already described as its northern limit.'

This country has been ruled wholly or in part by many dynasties, of whom the Andhras or Sātavāhanas, the Kadambas, the Pallavas, the Gangas, the Chālukyas, the Rāshtrakūtas, the Cholas, the later Chālukyas, the Hoysalas, and the house of Vijayanagar are the most prominent. The Vijayanagar kings, who came into power about the year 1336, conquered the whole of the peninsula south of the Tungabhadra river. They were completely overthrown by the Muhammadans in 1565, and retired first to Penukonda, and then to Chandragiri, one branch of the family remaining at Anagundi opposite to their old capital. It was these conquests that probably led to the extension of the term 'Carnatic' to the southern plain country; and this latter region came to be called Karnāta Pāyanghāt, or 'lowlands,' to distinguish it from Karnāta Bālāghāt, or the 'hill country.' When the Muhammadan kings of the Deccan ousted the Vijayanagar dynasty, they divided the north of the Vijayanagar country between them into Carnatic Hyderābād (or Golconda) and Carnatic Bijāpur, each being further subdivided into Pāyanghāt and Bālāghāt. At this time, according to Wilks, the northern boundary of Karnāta (Carnatic) was the Tungabhadra.

The later or Madras Carnatic.

Speaking of this period and the modern misapplication of the name, Bishop Caldwell says (*Grammar of the Dravidian Languages*, pp. 34–5):—

'The term *Karnāta* or *Karnātaka* is said to have been a generic term, including both the Telugu and Kanarese peoples and their languages, though it is admitted that it usually denoted the latter alone, and though it is to the latter that

the abbreviated form Kannadam has been appropriated. Karnātaka (that which belongs to Karnāta) is regarded as a Sanskrit word by native Pandits; but I agree with Dr. Gundert in preferring to derive it from the Dravidian words *kar*, "black," *nādu* (the adjective form of which in Telugu is *nāti*), "country," that is, "the black country," a term very suitable to designate the "black cotton soil," as it is called, of the plateau of the Southern Deccan. The use of the term is of considerable antiquity, as we find it in the *Varāha-Mihira* at the beginning of the fifth[1] century A.D. Tārānātha also mentions Karnāta. The word Karnāta or Karnātaka, though at first a generic term, became in process of time the appellation of the Kanarese people and of their language alone, to the entire exclusion of the Telugu. Karnātaka has now got into the hands of foreigners, who have given it a new and entirely erroneous application. When the Muhammadans arrived in Southern India, they found that part of it with which they first became acquainted—the country above the Ghāts, including Mysore and part of Telingāna—called the Karnātaka country. In course of time, by a misapplication of terms, they applied the same name Karnātak, or Carnatic, to designate the country below the Ghāts, as well as that which was above. The English have carried the misapplication a step farther, and restricted the name to the country below the Ghāts, which never had any right to it whatever. Hence the Mysore country, which is probably the true Carnatic, is no longer called by that name; and what is now geographically termed "the Carnatic" is exclusively the country below the Ghāts, on the Coromandel coast.'

The Bombay Carnatic.

It is this latter country which formed the dominions of the Nawābs of the Carnatic, who played such an important part in the struggle for supremacy between the English and the French in the eighteenth century, and which now forms the greater portion of the present Madras Presidency. This connotation still survives in the designation of Madras regiments as Carnatic infantry. Administratively, however, the term Carnatic (or Karnātak as it is there used) is now restricted to the Bombay portion of the original Karnāta, namely, the Districts of Belgaum, Dhārwār, and Bijāpur, and part of North Kanara, with the Native States of the Southern Marāthā Agency and Kolhāpur. *See* SOUTHERN MARĀTHĀ COUNTRY.

Ceded Districts.—In 1800 the Nizām of Hyderābād ceded to the British, in return for a subsidiary force to be maintained in his dominions, the territories he had acquired from Mysore by the treaties of 1792 and 1799 which closed the second and third Mysore Wars. These included the former Madras Districts of Bellary and Cuddapah and four *tāluks* of what is now the

[1] *Recte*, sixth.

Kurnool District, and were known as the Ceded Districts. The rest of Kurnool was at that time in the possession of a Nawāb who was tributary to the Nizām, and the latter's suzerainty passed to the Company. In 1839 the Nawāb rebelled and his territory was annexed by the British. In 1882 the District of Bellary was divided into the two existing Districts of Bellary and Anantapur. The four Collectorates thus established, Cuddapah, Kurnool, Bellary, and Anantapur, are still known as the Ceded Districts.

Circārs, Northern (*Sarkār* = a division of land).—A name applied to the five northern Districts of the Madras Presidency —Ganjām, Vizagapatam, Godāvari, Kistna, and Guntūr. It dates from the Musalmān occupation of that part of the country. There were then five Circārs: namely, Guntūr, Kondapalli, Ellore, Rājahmundry, and Chicacole. Chicacole included the present Ganjām and Vizagapatam Districts; Rājahmundry extended to Cocanāda; and Kondapalli came as far south as the Kistna river. The chief town of the five Circārs was Masulipatam.

In 1750 Muzaffar Jang, on becoming Sūbahdār of the Deccan by the help of the French, ceded to them Masulipatam, with the adjacent country. In 1753 his successor, Salābat Jang, extended the grant to the whole of the Northern Circārs. M. Bussy, who was appointed to the government of the new tract, united the whole, though not without great trouble in Chicacole, Bobbili, and other places, under the titular chiefship of Viziarāma Rāz, Rājā of Vizianagram. He was succeeded by Ananda Rāz, who, after making offers in vain to the Madras Government (then embarrassed by the French besieging its capital), surrendered the Circārs to the English in Bengal. Lord Clive at once sent an army southwards, which, after defeating the French, stormed Masulipatam. A treaty was concluded with Salābat Jang, by which all the territory dependent on Masulipatam, about 80 miles in length and 20 in breadth, was ceded to the English. In 1761 Nizām Alī supplanted Salābat Jang; and in the following year four of the Circārs were offered by him to the East India Company on condition of affording military aid. The offer was refused; but in 1765 the Company obtained a grant of all the five Circārs from the emperor, Shāh Alam. To secure possession of them the fort of Kondapalli was seized, and a treaty of alliance signed with Nizām Alī at Hyderābād, November 12, 1766. By this treaty the Company, in consideration of the grant of the Circārs, engaged to maintain troops at an annual cost of £90,000 for

the Nizām's assistance whenever required. Guntūr, being a personal estate of the Nizām's brother, Basālat Jang, was, as a matter of courtesy, excepted during his lifetime. Two years later another treaty was signed (on March 1, 1768), in which the Nizām acknowledged the validity of Shāh Alām's grant and resigned the Circārs (Guntūr again excepted) to the Company, receiving, as a mark of friendship, £50,000 per annum. In 1769 the Circārs were taken under direct management; and in 1778 Guntūr was also rented, by special treaty, from Basālat Jang for his lifetime. The Nizām strongly objected to this lease and the Madras Government eventually cancelled it. Basālat Jang died in 1782; but though Guntūr should then have been at once handed over, it was not until 1788 that it came under British administration. In 1823 the claims of the Nizām over the Northern Circārs were determined by a money payment from the Company of 116½ lakhs, and the whole thus became a British possession.

Chera (or Kerala).—The name of one of the oldest kingdoms in Southern India. The exact locality is still a subject of dispute, but it is certain that it included the western coast of the Madras Presidency. It is doubtful whether the kingdom was simply synonymous with Kerala, which was the name of the whole western coast, including Travancore, or whether Chera was an older name for the kingdoms of Kerala and of the Kongu kings combined. If the latter, it embraced, besides the present Districts of Kanara and Malabar and the Native States of Cochin and Travancore, the Districts of Coimbatore and Salem, with parts of Mysore and the Nīlgiris. In the earliest historical days, CHERA, CHOLA, and PĀNDYA formed the three great southern kingdoms, the confines of which met, according to tradition, at a place on the Cauvery river, 11 miles east of Karūr. The date of the origin of the Chera dynasty is unknown, but it was in existence early in the Christian era. It is mentioned in the edicts of Asoka and by Ptolemy. Towards the end of the ninth or beginning of the tenth century, the Chera country was overrun by the Cholas. Their dominion appears to have continued until the end of the eleventh century, when it was probably checked by the Hoysalas of Dorasamudra (Halebīd in Mysore), but they held the country till they were overthrown by the Muhammadans in A.D. 1310. The latter were shortly afterwards driven out by a Hindu confederation, headed by the rising chiefs of Vijayanagar, and for two centuries were held in check, while the Vijayanagar empire, which absorbed the ancient State of Chera, grew to

its greatest height of prosperity and grandeur. In 1565 the Vijayanagar kingdom was destroyed by the Muhammadans; but the Chera country was probably held by the Naiks of Madura till the period when the whole of Southern India was devastated by the constant strife between the rising kings of Mysore, the Madura Naiks, and the Muhammadans. In 1640 the Chera country was captured by the armies of the Adil Shāhi dynasty of Bijāpur, and was seized by the Mysore king in 1652. Perpetual strife ensued, ending only on the downfall of Tipū Sultān and the capture of Seringapatam.

Chola (*Choda*; in Asoka's inscriptions, *Chora*; the *Chorai* of Ptolemy, *Choliya* of Hiuen Tsiang, and *Sora* of Pliny).—One of the three ancient kingdoms which, according to tradition, originally divided the South of India. Its capital was at one time at Uraiyūr, now a suburb of Trichinopoly. Little definite is known of its rulers until the tenth century, when its capital was Tanjore, but the deciphering of the numerous inscriptions of the dynasty which survive is gradually clearing up their history from that time forward. Their expansion in the tenth and eleventh centuries is one of the great landmarks of South Indian history. They subverted both the Pallavas and the Pāndyas and also the Eastern Chālukyas, with whom they subsequently maintained friendly relations for three generations by intermarriages, until eventually an Eastern Chālukya prince ascended the Chola throne about the close of the eleventh century. Rājārājā Deva, who came to the throne at the end of the tenth century, and was perhaps the greatest of their kings, seems to have ruled over almost all of what is now the Madras Presidency, as well as Mysore and Coorg. He had an organized army and a regular system of civil administration. He did much to beautify his capital city. It was about this time that a careful survey of the cultivable land in the Tamil country was conducted. His successors followed in his footsteps and expended their wealth in the construction of beautiful temples and useful irrigation works—among the latter the Grand Anicut and several channels in the Tanjore delta. The dynasty declined towards the end of the twelfth century, falling before the Pāndyas of Madura, the Hoysalas of Dorasamudra, and the Kākatīyas of Warangal, and was eventually overthrown by the Musalmān invasion of 1310.

Coromandel Coast.—A name applied in the old histories and official correspondence to the east coast of the Madras Presidency. The term was used in no very definite sense and has now fallen into disuse. The derivation of Coromandel has

been the subject of some discussion, but it is now generally held to be a corruption of Cholamandalam, 'the country of the Cholas.'

Extent.

Deccan (or *Dakhan*).—This name, a corruption of the Sanskrit *dakshina* = 'southern,' includes, in its widest sense, the whole of India south of the Narbadā river, or, which is nearly the same thing, south of the Vindhya mountains. In its narrower sense it has much the same meaning as MAHĀRĀSHTRA, or the country where the Marāthī language is spoken, if the below-Ghāt tract be omitted. In this connotation its southern boundary lies along the course of the Kistna river. In a still narrower sense the Deccan is regarded as bounded on the north by the Sātmāla hills. Adopting the broadest meaning, the Deccan on its western side descends seaward by a succession of terraces from the WESTERN GHĀTS, which rise in parts to over 4,000 feet in height and terminate abruptly near Cape Comorin, the extreme southern point of the Peninsula, at an elevation of 2,000 feet. From here, following the coast-line, the EASTERN GHĀTS commence in a series of detached groups, which, uniting in about latitude 11° 40′ N., run north-eastward along the Coromandel coast, with an average elevation of 1,500 feet, and join the Vindhyas, which cross the Peninsula from west to east in nearly the same latitude (13° 20′ N.) as their western counterpart. The Vindhyan range thus joins the northern extremities of the two Ghāts and completes the peninsular triangle of the Deccan. The eastern side of the enclosed table-land being much lower than the western, all the principal rivers of the Deccan, the Godāvari, Kistna, and Cauvery, rising in the Western Ghāts, flow eastward, and escape by openings in the Eastern Ghāts into the Bay of Bengal. Between the Ghāts and the sea on either side the land differs in being, on the east, composed in part of alluvial deposits brought down from the mountains, and sloping gently; while on the west the incline is abrupt, and the coast strip is broken by irregular spurs from the Ghāts, which at places descend into the sea in steep cliffs.

Geology[1].

The Deccan table-land is one of the relics of the old Gondwāna continent which formerly connected India with Africa, and which broke up at about the time that the chalk was forming in Europe. It is one of the few solid blocks of ancient land which has not suffered any of the folding movements so marked in most lands, and which, so far as we know, has never been depressed below the ocean. Except near the present coasts at

[1] Contributed by Mr. T. H. Holland, Director, Geological Survey of India.

low levels, not a single marine fossil has been found in the whole Deccan. The 'basement complex' of the Deccan table-land includes the usual assemblage of gneisses and schists, among them the bands of schists distinguished by the name of the Dhārwārs containing the auriferous veins of Mysore which have, since they were opened up in 1881, yielded gold to the value of 19 millions sterling. Lying on the denuded surfaces of these ancient schists and gneisses are enormous thicknesses of unfossiliferous strata which, in default of evidence to the contrary, are regarded as pre-Cambrian in age. These occur as isolated patches in the Cuddapah and Kurnool Districts of Madras; in the Southern Marāthā country; in parts of the Godāvari Valley; and in Gwalior, Bundelkhand, and the Vindhyan region of Central India. In small basins, generally preserved at lower levels, we find the coal-bearing deposits formed by the great rivers of the old Gondwāna continent in upper palaeozoic and mesozoic times, while for an area of some 200,000 square miles the older rocks are covered with great masses of basaltic lava, which spread over the country in upper Cretaceous times and now form the highlands of the Deccan, remaining practically as horizontal as they must have been when they flowed as molten sheets over the country. Here and there, where the Deccan trap has been cut through by weather influences, we get glimpses of the old land-surface which was overwhelmed by lava-flows, while between the flows there were apparently interruptions sufficient to permit of the development of life in the lakes and rivers, of which the records are preserved in the so-called inter-trappean beds of fresh-water limestone, shales, and sandstones. The scenery of the Deccan trap highlands is the result of the subaerial erosion of the horizontal sheets of lava; the first plateaux of the hill-tops, and the horizontal terraces, which are traceable for miles along the scarps, are features eminently characteristic of the weathering of basaltic lava-flows. The long grass, the general absence of large trees, and the occurrence of almost purely deciduous forms, combine with the outlines of the hills to distinguish the trap areas from all others in the Deccan.

Two peculiar features of the Deccan are worth special mention: one is the occurrence, over most of the trap area, of the peculiar black, argillaceous, and calcareous soil known as *regar*, and from its suitability for cotton-growing, as 'cotton soil'; the other is the peculiar decomposition product known as laterite, which is essentially a dirty mixture of aluminic and ferric hydrates, formed by a special form of rock alteration confined

to moist tropical climates, and often resembling the material known as bauxite which is worked as a source of aluminium.

History. Little is known in detail of the history of the Deccan before the close of the thirteenth century. Hindu legends tell of its invasion by Rāma, and the main authentic points known are the coming of the first Aryans (*cir.* seventh century B.C.), the advance of the Mauryas (B.C. 250), and the Scythic invasion of A.D. 100. Archaeological remains and inscriptions bear witness to a series of dynasties of which the Cholas, the Andhras or Sātavāhanas, the Chālukyas, the Rāshtrakūtas, and the Yādavas of Deogiri are the best known. (*See* BOMBAY PRESIDENCY—History.) The country was known to the author of the *Periplus* in the third century A.D. as *Dachina Bades* (Dakshināpata), and to the Chinese pilgrim Fa Hian in the fifth century as Ta Thsin. Continuous history commences with the Muhammadan invasion of 1294–1300, when Alā-ud-dīn, the Khiljī emperor of Delhi, overran Mahārāshtra, Telingāna, and Karnāta. In 1338 the reduction of the Deccan was completed by Muhammad bin Tughlak; but a few years later a general revolt resulted in the establishment of the Muhammadan Bahmani dynasty, and the retrogression of Delhi supremacy beyond the Narbadā. The Bahmani dynasty advanced its eastern frontier at the expense of the Hindu kingdom of Telingāna to Golconda in 1373, to Warangal in 1421, and to the Bay of Bengal in 1472. A few years later (1482) it began to disintegrate, and was broken up into the five rival Muhammadan kingdoms of BIJĀPUR, AHMADNAGAR, GOLCONDA, BĪDAR, and BERĀR. These were counterbalanced in the south, as the Bahmani empire had been, by the great Hindu kingdom of VIJAYANAGAR, which was however broken up in 1565, at the battle of Tālikotā, by a coalition of the Muhammadan powers. Of these, Bīdar and Berār became extinct before 1630; the other three kingdoms were restored to the Delhi empire by the victories of Akbar, Shāh Jahān, and Aurangzeb. The Deccan was thus for a second time brought under the Delhi rule, but not for long. The Marāthās in 1706 obtained the right of levying tribute over Southern India, and their leading chiefs, who had practically superseded the dynasty of Sivajī, were the Peshwās of Poona. A great Delhi viceroy (the Nizām-ul-mulk), rallying the southern Muhammadans round him, established the Nizāmat of HYDERĀBĀD. The remainder of the imperial possessions in the Deccan was divided among minor princes who generally acknowledged the supremacy of the Peshwā or the Nizām, according as they were north or south of the Tungabhadra.

MYSORE, alternately tributary to both, became eventually the prize of Haidar Alī, while in the extreme south the Travancore State enjoyed, by its isolated position, uninterrupted independence. Such was the position of affairs early in the eighteenth century. Meanwhile Portugal, Holland, France, and England had effected settlements on the coast; but the two former on so small a scale that they took no important part in the wars of succession between the native princes which occupied the middle of the century. The French and English, however, espoused opposite sides, and their struggles eventually resulted in establishing the supremacy of the latter (1761), which became definitely affirmed, under Lords Wellesley and Hastings, by the establishment of British influence at Hyderābād, the overthrow of Tipū Sultān, and the Marāthā Wars which followed, and the annexation of the Peshwā's dominions in 1818. The dominions of the other important Marāthā chief of the Deccan, the Bhonsla Rājā of Nāgpur, lapsed to the British on the extinction of the dynasty in 1854. The Deccan is to-day included in the Presidency of Madras, part of Bombay and the Central Provinces, together with Hyderābād, Mysore, and other Native States.

Kalinga.—One of the ancient kingdoms on the east coast of India. Its limits have been variously fixed, but it appears to have included the country lying between the Eastern Ghāts and the sea from the Godāvari river as far north as Orissa. Its people and its reigning house are alluded to in the oldest extant chronicles of India and Ceylon, and were also known to the classical writers of Greece and Rome and to the inhabitants of the Far East. They appear to have been adventurous traders by sea to different countries. The earliest Buddhist legends speak of the Kalinga monarchs as being even then the rulers of a civilized country, but little definite is known of them. A number of kings belonging to the Eastern Gangas of Kalinga are known from copperplate grants, which are dated in an era whose starting-point has yet to be settled. The earliest of these kings is believed to belong to the seventh century. Later records of the same family state that the Gangas of Kalinga were the cousins of the Western Gangas of Mysore. At the beginning of the eleventh century the Cholas overran Kalinga, which was then in the possession of the Eastern Chālukyas, and set up a pillar of victory on the Mahendragiri hill. The Gangas appear to have held Kalinga until a comparatively late period, though defeated by the Gajapatis in the fifteenth century. Inscriptions recently deciphered seem to show that

their capital, for which very various sites have been at different times assigned, was at MUKHALINGAM in Ganjām District.

Pāndya.—One of the three kingdoms, the other two being CHERA and CHOLA, which in ancient times divided the South of India among them. Megasthenes (302 B.C.) speaks of a country called *Pandaia*; one of Asoka's inscriptions (250 B.C.) mentions the kingdom; so does Pliny (A.D. 77); and Bishop Caldwell thought that the Indian king who sent an embassy to the emperor Augustus at Rome was a Pāndya sovereign. The dynasty is thus of much antiquity. Regarding its early history there is, however, little but vague tradition. Its capital was at MADURA, and the extensive finds of Roman copper coins in the bed of the Vaigai have been held to indicate the former existence of a Roman settlement in that neighbourhood. Kolkai ('Kolkhoi Emporium') at the mouth of the Tāmbraparni, now quite silted up, was one of the principal ports, if not at one time the capital, of the Pāndyas. The Singhalese epic, the Mahāwansa, which was written between A.D. 459 and 477, says that a king of Ceylon married a Pāndya princess, and later on the two countries were several times at war with one another.

In the tenth century the Pāndyas were overthrown by the Cholas, and a dynasty called in the inscriptions the Chola-Pāndya line was probably established during the second half of the eleventh century. Subsequently the Pāndyas appear to have reasserted themselves, for they were in power when the Musalmāns under Malik Kāfūr swept down the Peninsula, and they shared in the downfall of the Hindu kingdoms of the South which resulted from that invasion.

Telingāna (Telingā, Trilinga, i.e. the three *lingams* of Siva at Kālahasti, Srīsailam, and Drākshārāma. The term originally denoted the tract of country in which these three famous temples were situated).—A name applied vaguely by the Muhammadans to the country of the Telugus, in the north-eastern portion of the Madras Presidency. Its northern boundary was apparently the Godāvari river, which separated it from the kingdom of KALINGA. A somewhat more precise name for it was Andhra, but this was sometimes used to include Kalinga and the other provinces which the Andhra kings conquered. The Peutingerian Tables, presumed to be earlier than Ptolemy, omit all mention of Kalinga, but speak of *Andrae Indi*. Ptolemy (A.D. 150) mentions Kalinga but not Andhra. The Purānas mention both, as do Pliny and Hiuen Tsiang (A.D. 630). At the latter date, Andhra was recognized as one of the six great divisions of the South. The Andhras

were Buddhists by religion, but patronized Brāhmans as well. Their curious leaden coins are still found in considerable numbers in the valley of the Kistna. For the Andhras see history of Mysore, Berar, and Bombay.

Vengi.—One of the ancient kingdoms of Southern India. It lay between the mouths of the Kistna and Godāvari rivers, and reached from the coast to a considerable distance inland. It was apparently originally a province of the Pallavas of Conjeeveram, and was conquered by the Chālukyas in the seventh century. Its capital seems to have been at Pedda Vegi, 8 miles north of Ellore in Kistna District, where the country is strewn with the remains of ancient temples and buildings and with mounds which probably cover other ruins.

GANJĀM DISTRICT

Boundaries, configuration, and hill and river systems.

Ganjām District.—Northernmost District of the Madras Presidency, lying along the shore of the Bay of Bengal between 18° 12′ and 20° 26′ N. and 83° 30′ and 85° 12′ E., with an area of 8,372 square miles. It is called after its former head-quarters, but the derivation of the name is unknown. The fanciful etymology from Ganji-ām, 'the storehouse of the world,' has no satisfactory authority and no sufficient warrant in the fertility of the District. In shape Ganjām is triangular, running to a point at its southern end. Its northern boundary is formed by Orissa and the States recently transferred from the Central Provinces to Bengal, its eastern by the sea, and its western by the adjoining Madras District of Vizagapatam. Much of it is mountainous and rocky, but it is interspersed with valleys and fertile plains; pleasant groves of trees give to the scenery of the low country a greener appearance than is usually met with in the plains farther south; and with its background of wild hills, frequently covered with dark jungle, it is one of the most beautiful Districts in the Presidency, winning the affections of almost every officer who serves within it.

The EASTERN GHĀTS traverse it from north to south, and are nowhere more than 50 miles from the sea. At Bāruva, in the centre of the District, they are within 15 miles of the sea, and at this point are much loftier than elsewhere, the peaks of Singarāzu and Mahendragiri, the two highest points in the District, being close upon 5,000 feet high. Devagiri (4,535 feet), which stands farther south behind Parlākimedi, is their next highest hill. They divide the District into two well-defined portions, the MĀLIAHS, or hills, and the plains. The former, which are described in more detail in the separate account of them, occupy the whole of the western half. This hilly area is also known as the Agency of Ganjām. It is a wild country, for the most part inhabited by backward forest tribes, to whom it would be inexpedient to apply the whole of the ordinary law of the land, and it is consequently ruled by the Collector under special powers as Agent to the Governor. The ordinary courts of justice have no jurisdiction within it, the Collector being the chief civil and criminal tribunal, with an

appeal from his decisions to the High Court and the Governor-in-Council. There are similar Agencies in the two adjoining Madras Districts of Vizagapatam and Godāvari. In Ganjām these tracts are for the most part held on a kind of feudal tenure, while the plains consist of three Government *tāluks* and several permanently settled estates.

No real lakes are situated in Ganjām; but near the coast, and sometimes farther inland, shallow depressions occur, which are filled in some cases with fresh, and in others with brackish, water. These are known as *tamparās* or *sāgarams*. The largest of them is the CHILKA LAKE on the northern frontier.

The three principal rivers of the District, all of which are utilized for irrigation, run eastwards into the Bay. They are the RUSHIKULYA, which with its tributaries (the chief of which are the Mahānadī and the Godāhaddo) drains the northern part of the District, and the Vamsadhāra and the Lāngulya, which traverse it in the extreme south. The Vamsadhāra enters Ganjām at Battili, and after running southwards through it for 70 miles falls into the sea at Calingapatam. The Lāngulya forms, for the last 30 miles of its course, the southern boundary of the District, and enters the sea 3 miles from CHICACOLE, where it is crossed by the trunk road on a fine bridge.

Geology. The rocks exposed in the District are Archaean gneisses and schists of the older and younger type, together with intrusive bands of charnockite (hypersthene granulite) and biotite gneissose granite. The younger type is of a distinctly metamorphic series. Cappings of high-level horizontal laterite, as much as 200 feet thick, are common at about the 4,000 feet level. In the flat coast region, except for the thickly dotted rocky ridges and hills, recent alluvium and low-level lateritic red clay are generally present.

Botany. Botanically, most of Ganjām is included in what is classed as the moist region of the Presidency. Near the coast the wooded area consists to a large extent of scrub jungle, but it comprises tree forest inland where the rainfall is heavier; the herbaceous flora is made up of plants belonging to both the dry and moist regions. The more prominent crops and the chief growth of the forests are referred to later. The most characteristic tree of the latter is *sāl* (*Shorea robusta*). In some places along the coast casuarina has been planted, which grows very fast and is valuable as firewood.

Fauna. Ganjām is a fair sporting country. Bears and hyenas are common, and wolves, leopards, and tigers are also met with. Of the deer tribe, *sāmbar*, spotted deer, barking-deer, and

mouse deer occur on the slopes of the hills, where are also some *nīlgai*; and antelope are found on the plains. The four-horned antelope, bison, and wild hog are rarer. Wild dogs commit havoc among the game. It is believed by the natives that there are two kinds of them: the *bolio-kukuro*, which hunt in pairs, and the *khogo*, which hunt in packs; but the former are apparently wolves which have been mistaken for wild dogs.

Climate and temperature.

The climate along the coast, close to which most of the chief towns are situated, is usually cool and healthy, but GANJĀM town is notoriously malarious, and for this reason has ceased to be the District head-quarters. The Māliahs and the tracts adjoining them are also particularly malarious. The District is one of the few in the Presidency which enjoys a real cold season.

Rainfall.

The rainfall is usually considerable, being greatest in the Agency tracts, where it averages 55 inches annually. In the plains, the rain brought by the south-west monsoon is heavier inland than on the coast, while the reverse is the case with the northeast monsoon. On the coast the fall in both monsoons is heavier at the northern stations than in the south. The annual rainfall in the District as a whole averages 45 inches, and the average number of wet days in the year is 59. The south-west current rarely fails, though it often sets in late; but the north-east is much more precarious, and there have been three famines (see below) in the last half-century. Otherwise Ganjām has escaped serious natural calamities. A heavy flood in the Lāngulya in 1876, caused by a cyclone, destroyed six arches of the bridge at Chicacole, and floods in the Rushikulya on another occasion washed away a portion of the town of Purushottapur.

History.

Historically, Ganjām formed part of the ancient KALINGA, though at times the kingdom of VENGI encroached upon its southern border. Conquered by the Mauryan king Asoka in 260 B.C., it seems to have passed later under the Andhra kings of Vengi. Both of these were Buddhists, and Asoka has left an edict at Jaugada. The Andhras were driven out of this part of the country in the third century A.D., and made way for the early line of the Ganga kings of Kalinga. The dates of the early Gangas are very obscure, and so are their relations with the Eastern Chālukyas of Vengi; but the latter seem at one time to have ruled a part of Ganjām. The Chola conquest of Vengi and Kalinga, which took place at the end of the tenth and the beginning of the eleventh centuries, certainly included

parts of Ganjām, and the great king Rājendra Chola has left a record of his victories on Mahendragiri hill. But the degree and the variation of the Chola control over Kalinga are still obscure. About the time of the Chola conquest the line of the later Ganga kings of Kalinga comes into view, who ruled, first no doubt as Chola feudatories, but later as independent sovereigns, for the next four centuries. They extended their dominions far to the north and south, and only fell before domestic treachery. The power of the Gajapatis of Orissa, whose descendants still hold considerable portions of the District, was founded in the fifteenth century by a minister of the former dynasty, who murdered his master and usurped the throne. About 1571 these last were ousted by the Kutb Shāhi dynasty of Golconda, and for the next 180 years the country was ruled from Chicacole by Muhammadans. Apart from the mosque at that town, there are scarcely any permanent traces of their dominion.

In 1687 the emperor Aurangzeb compelled Golconda to acknowledge his authority, and the governors of Chicacole were thereafter appointed by his Sūbahdārs of the Deccan. For services to two of these Sūbahdārs, the French obtained in 1753, among other tracts, the Chicacole *Sarkār*—one of the five NORTHERN CIRCĀRS—which included the present District of Ganjām. In 1757 De Bussy came to reduce it to order, but in the next year he was summoned south by Lally, then Governor of Pondicherry, to help in the siege of Madras. Immediately on his departure, Clive dispatched Colonel Forde to the south with a force from Bengal. Forde defeated De Bussy's successor and captured Masulipatam, the French head-quarters, in January, 1759. The Sūbahdār of the Deccan thereupon changed sides and made a treaty with Forde agreeing to prevent the French ever settling in these parts again. By this agreement, ratified by a *farmān* from the emperor Shāh Alam in 1765, and another treaty with the Sūbahdār in 1766, the English received the whole of the Northern Circārs.

Ganjām, however, took longer to pacify than any area in the Presidency, and it was not until 70 years later that it was finally reduced to order. It originally consisted of the country as far south as the Pūndi river; and most of the numerous *zamīndārs* in this area (who had 34 forts and 32,000 irregular troops) were contumacious, frequently annexing Government villages, quarrelling with one another or over disputed successions, and declining to pay any tribute until compelled by force. Troops were used at different times against no less than fifteen of

them; but these expeditions, though they cost time, money, and often valuable lives, had little permanent effect.

In 1803 the Chicacole division, which included the PARLĀKIMEDI ZAMĪNDĀRI, was added to the District. The disturbances which subsequently occurred in that tract lasted in a more or less open manner for nineteen years from 1813 to 1832, being chiefly caused by the factions among the eleven hill chiefs, called Bissoyis, to whom certain villages had been granted by the *zamīndār* on condition that they prevented the Savara hill tribes from raiding the low country. They not only failed to keep the Savaras in order, but themselves perpetually harassed the villages in the plains. In 1816, 4,000 or 5,000 Pindāris entered the District from Jeypore and swept through the whole of it, plundering and burning.

By 1832 the Bissoyis' doings became so intolerable that Mr. George Russell, first Member of the Board of Revenue and name-father of Russellkonda, was sent to stop them. He proclaimed martial law, captured the Bissoyis and their forts one after the other, hanged some and transported others, and gave the District a spell of quiet. In 1836 he followed a similar policy in Goomsur, and since then there have been no disturbances of importance. Two other notable results of Russell's mission were the appointment in 1836 of the Meriah Agents to put down the practice of human sacrifice among the Khonds, and the passing of the Act of 1839, by which the Collector of Ganjām, under the title of Agent to the Governor, received special powers over the hill country and its inhabitants. Russell's account of his mission and the reports of the Meriah Agents down to 1861, when they were abolished, give a vivid picture of the Ganjām of those restless days.

Archaeology.

Except Asoka's edicts at Jaugada, the only notable antiquities in the District are several ancient temples, some of which furnish interesting examples of architecture and sculpture, and contain inscriptions throwing much light on the early history of Kalinga. The most important are the Vaishnavite shrine at SRĪKŪRMAM and the Saivite temple at MUKHALINGAM.

The people.

The District as a whole contains 8 towns, all in the low country, and 6,145 villages; but the villages in the Māliahs are small, with an average of less than 200 inhabitants.

Population has shown a steady advance during the past thirty years, the inhabitants numbering 1,520,088 in 1871; 1,749,604 in 1881; 1,896,803 in 1891; and 2,010,256 in 1901. Migration to the Assam tea gardens and to Bengal and Burma has lately somewhat checked the increase. Statistical

particulars of the *tāluks* and *tahsīls*, according to the Census of 1901, are appended :—

Tāluk or *tahsīl.*	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Balligudā . .	1,390	...	472	104,714	75	− 2·3	451
Rāmagiri . .	1,191	...	542	74,393	62	+ 16·0	332
Udayagiri . .	504	...	401	76,858	152	+ 4·7	905
Goomsur . .	1,141	...	697	200,357	176	+ 7·8	10,818
Surada (including Agency area)	198	...	198	23,230	117	+ 13·9	532
Aska . .	407	...	368	115,883	285	+ 6·4	5,091
Ganjām . .	308	...	324	95,882	311	+ 8·1	5,318
Purushottapur .	294	...	270	102,396	348	+ 6·1	4,996
Berhampur .	685	3	549	344,368	504	+ 6·5	19,398
Ichchāpuram .	300	...	266	83,500	278	+ 11·6	3,813
Sompeta (including Agency area)	283	1	347	102,690	364	+ 7·0	2,360
Chicacole . .	373	2	305	223,373	599	+ 5·1	8,741
Narasannapeta .	51	...	41	26,452	519	+ 6·3	819
Parlākimedi (including Agency area) . .	972	1	1,015	311,534	321	+ 2·3	9,097
Tekkali . .	275	1	350	124,626	453	+ 7·9	3,829
Total	8,372	8	6,145	2,010,256	240	+ 5·9	76,500

The chief towns are the municipalities of BERHAMPUR, CHICACOLE, and PARLĀKIMEDI. In the plains 96 per cent. of the population are Hindus and nearly all the remainder are Animists; while in the Agency tract more than two-thirds of the total are Animists. Musalmāns and Christians are fewer than in any other Madras District. In the low country the density of population is above the average for the Presidency, but in the Agencies it is only one-third as great, being less than 100 persons per square mile. Telugu is mainly spoken in the southern half of the District, while in the north the prevailing language is Oriyā. In the Agency tract Khond is on the whole the prevailing vernacular, but in the Southern Māliahs Savara is most used.

Their castes and occupations.

Except for a few Khonds and Savaras, the people of the plains nearly all belong to either Telugu or Oriyā castes. The Telugu castes resemble, generally, those found elsewhere. The cultivating Kāpus (150,000) are the most numerous, and then come the Kālingis (104,000), who are in greater strength in this District than in any other. Of the Oriyā castes by

far the most numerous are the Brāhmans. They number nearly 8 per cent. of the Hindus and Animists of the District, a proportion which is exceeded only by the Brāhmans in South Kanara. Some classes of them differ from their fellows farther south in having no religious scruples against engaging personally in cultivation and trade.

In the Agency tract there are 90,000 persons of Oriyā-speaking castes, 44,000 of whom are Pānos (whose usual occupations are weaving and thieving), but otherwise the population consists almost entirely of Khonds (139,000) and Savaras (83,000). These two tribes are described in the article on the MĀLIAHS. They are more numerous in Ganjām than anywhere else in the Presidency.

The means of livelihood of the people in the low country differs but little from the normal. About 66 per cent. of them are engaged in agricultural and pastoral pursuits, compared with an average of 70 per cent. in the Presidency as a whole; but a larger proportion than usual returned themselves as living by unskilled labour, and probably many of these are in reality mainly agricultural labourers. In the Agency tract, however, the population subsists almost entirely by the land, the only industrial pursuit of any consequence being weaving.

Christian missions.

Of the 3,042 native Christians in the District in 1901, 1,948 belonged to the Roman Catholic Church, which began work in the District in 1768 and has its head-quarters at Surada; and 910 to the Baptist Mission, which started operations in 1825, and the chief station of which is at Berhampur. The Canadian Baptist Mission has stations at Chicacole, Parlākimedi, and Tekkali.

General agricultural conditions.

The soils in the Agency tract are of three kinds, black earth, loam, and red ferruginous land; but the first, which is the best, occurs only in occasional patches, and the second, the next most fertile, is chiefly used for turmeric cultivation. In the plains, black cotton soil (*regar*) predominates, the other land being red and sandy and, to a small extent, alluvial. Of the 'dry' (unirrigated) land, three-fifths in the Goomsur *tāluk*, one-fourth in Chicacole, and one-sixth in Berhampur is of superior quality, being *regar* clay or *regar* loam. Of the 'wet' land, three-fourths in the Chicacole *tāluk* is of good quality, but in Berhampur and Goomsur the proportion is only two-fifths. Rice, the most important crop in the District, is for the most part sown broadcast on 'dry' land, and then transplanted to the 'wet' fields and matured with the aid of artificial irrigation. On some 'dry' land it is raised with

the aid of rainfall alone. If rain fails in a single month in the season, the 'dry' crop is lost. Many officers have accordingly advocated the cultivation on these lands of *rāgi*, which requires less moisture; but the ryots adhere to the more precarious rice cultivation, as the produce, if only it comes to maturity, is treble the value of a crop of *rāgi*. The Oriyā ryots of the District are not industrious. The use of wells and garden cultivation are both very limited, though fencing and tree-growing are common.

Chief agricultural statistics and principal crops.

Of the 8,372 square miles of the District, 4,439 are *ryotwāri* land, 3,509 *zamīndāri*, and 424 *inām*. Detailed agricultural statistics are not available for the Agency tract (except for Chokkapād Khandam, a small area managed on the *ryotwāri* system) or for *zamīndāri* or 'whole *inām*' land. Of the *ryotwāri* land shown in the revenue accounts, 1,999 square miles were classified as follows in 1903-4:—

Tāluk.	Area shown in accounts.	Forests.	Cultivable waste.	Cultivated.	Irrigated.
Udayagiri . .	9	...	1	8	...
Goomsur . .	1,162	568	48	290	80
Berhampur . .	526	28	19	349	183
Chicacole . .	302	2	18	197	115
Total	1,999	598	86	844	378

Rice and *rāgi* are the staple food-grains of the District. Rice covers nearly three-fourths, and *rāgi* nearly one-sixth, of the total area cultivated. Other important crops are green gram, horse-gram, and gingelly. In the Agency tract the staple cereal is rice, and the main 'dry' grains are *rāgi* and pulses. The special crop of the Māliahs is turmeric, which takes three years to come to maturity and requires to be shaded from the sun during its first hot season. Products of the forest areas are alum, arrowroot, myrabolams, gall-nuts, and oranges. Every village owns a large number of mango-trees scattered about the jungle round it, and their fruit and a kind of flour made from the stones of the fruit are largely eaten. *Mahuā* (*Bassia latifolia*) trees also afford food, and arrack (strong spirit) is distilled from their flowers.

Improvements in agricultural practice.

Ganjām ryots are conservative and have introduced few agricultural improvements. During the seventeen years ending 1905 they have borrowed only Rs. 63,000 under the Land Improvement Loans Act. Most of this has been spent in reclaiming waste land, and wells are few in number and often

only temporary pits. Not a single well has been constructed with advances from Government in either Berhampur or Goomsur.

Cattle. Both bullocks and buffaloes are used for ploughing and other agricultural operations. They are bred locally, and are inferior and undersized animals, though there is no lack of pasture or fodder, even in bad years.

Irrigation. Of the total area of *ryotwāri* and *inām* land under cultivation 378 square miles, or 45 per cent., were irrigated in 1903-4. Of this, 213 square miles were watered from Government channels, 127 from tanks, and only 2 square miles from wells. The chief canals and channels are those belonging to the Rushikulya project and to what is known as the 'Ganjām minor rivers system.' These irrigated 92,000 acres and 79,000 acres respectively in 1903-4. The former, which is referred to in the article on the RUSHIKULYA river, supplies land in the Berhampur, Aska, and Goomsur *tāluks*, and is still being extended; while the latter, which irrigates part of the Chicacole *tāluk*, consists of the channels from the two rivers Lāngulya and Vamsadhāra, and of a hill stream known as the Garībulagedda. In the three Government *tāluks* of Berhampur, Goomsur, and Chicacole there are, including the major irrigation works, 2,505 Government tanks and 302 river and spring channels. The private works in the same area include 102 tanks and one river channel. Most of the wells in the District are mere shallow, temporary pits dug to supplement tank-irrigation. At present 2,493 of these constructions exist in the three Government *tāluks*. In Goomsur, not even one permanent well is used for irrigation, but Berhampur and Chicacole contain 1,007 and 408 respectively. The area watered from each of them averages only one acre. In the Māliahs, irrigation is entirely from hill streams and springs. The slopes of the hills and the valley through which the stream runs are levelled into terraces, and the water is led from field to field till the bottom of the slope is reached. Springs are diverted in a similar manner. These terraces are monuments of hard work and ingenuity, and have been constructed wherever there is any sufficient supply of water. They are made by the Khonds and Savaras, and in some places cover the whole side of a high hill from top to bottom.

Forests. The Forest Act has not been yet introduced into any part of the Agency tract except a small corner of Surada. Most of the forests are in *zamīndāri* land; and even where they are at

the disposal of Government the extension of the Act is held to be unnecessary and inadvisable, for the reasons that no special denudation has taken place in the valleys where the great rivers rise, that the best timber is inaccessible and so of no direct commercial value, that the introduction of the Act would involve the maintenance of a considerable establishment in a deadly climate, and that the curtailment of the existing privileges of the hillmen would lead to great discontent. Consequently the area in the District which has been constituted forest under the Act is only about 600 square miles. Of this, 570 square miles lie in Goomsur and practically all the remainder in Berhampur. The Goomsur forests are famous as containing the best *sāl* (*Shorea robusta*) in the Presidency. This timber perhaps ranks second in utility to teak, and grows best on the alluvial deposits in the basins of the Mahānadī and Rushikulya rivers and their tributaries, where a light covering of alluvium overlies a gravelly subsoil and disintegrated rock. Small areas of inferior *sāl* are found on the *kankar* and sandy conglomerates which occur on the plateaux and terraces above these basins. The Goomsur forests were much spoilt in former days by the shifting cultivation practised by the hill tribes, and have also been overworked. Steps are now being taken for their effective protection and improvement. Besides *sāl*, the more valuable timbers found are *Pterocarpus Marsupium*, *Terminalia tomentosa*, *Adina cordifolia*, *Soymida febrifuga*, *Stephegyne parvifolia*, ebony, and satin-wood. The stock of bamboos and small timber on the outer slopes of the Māliahs and on several of the detached hills is almost inexhaustible. There is a small teak plantation in one of the Reserves, but it is not flourishing.

In the Berhampur *tāluk* the Reserves contain only firewood, bamboos, and small timber. In Chicacole they consist of a single small patch of scrub. A Government casuarina plantation has been made in Agastinaugām, three miles north of Chatrapur.

There are no mines in Ganjām. Manganese ore has been discovered in small quantities near Boyirāni in the Atagada *zamīndāri*. Mica, antimony ore, and corundum are found in parts of the Goomsur *tāluk* and the Parlākimedi *tahsīl*, but not of commercial value. Salt is manufactured in large quantities in the Government salt-pans at Humma, Surlā, Naupada, and Calingapatam. Minerals.

The chief non-agricultural industry of the District is weaving. Ordinary cloths are woven in most villages on the plains, and Arts and manufactures.

silk fabrics are made at Berhampur. The latter are dyed, the favourite colours being purple and red. Chicacole used to be famous for its extremely fine muslins, but the better kinds of these are now made only to order. In the Māliahs, the Pānos weave the coarse cloths which are used by the Khonds and Savaras. They are much thicker and narrower than those woven in the plains, and are of various colours. This tribe also rears the *tasar* silk-moth, and the silk produced is sent to Berhampur and to Sambalpur in Bengal. The Khonds collect the valuable red *kamela* dye, a powder with which the scarlet berries of *Mallotus philippinensis* (the monkey-face tree) are coated, and, in their ignorance of its worth, part with it for a few measures of rice or a yard or two of cloth to the dealers in the plains, who export it in considerable quantities and make large profits. In addition to the ordinary gold and silver jewels, quaint brass bangles and other ornaments are made and worn by Oriyās in the north of the District. The women of some castes wear numbers of these bracelets, to the weight of several pounds, half-way up their arms. Fine betel-boxes and curious flexible fish of brass and silver are made at Bellugunta near Russellkonda.

A sugar factory and distillery at ASKA supplies country spirit to the excise tracts of the District, and makes various other alcoholic liquors. There is a tannery at Russellkonda. The Oriental Salt Company has a factory at Naupada, in which the ordinary marine salt, converted by a patented process into a fine white granular variety, is expected to compete favourably with the salt at present imported from Europe. In 1903–4, 4,400 tons of crushed and 750 tons of sifted salt were treated by the Company's special machinery. Sea and river fisheries form an important industry. There are 21 fish-curing yards, and their out-turn is greater than that of any District except the two on the west coast. In 1903–4 nearly 3,000 tons of fish were salted in them.

Commerce. The main exports of Ganjām are grain, pulses, myrabolams, hides and skins, hemp, oilseeds, turmeric, wood, salt, salted fish, and coco-nuts; while the chief imports are rice, piece-goods, twist, glassware, metals and metal goods, kerosene oil, spices, and gunny-bags. There are three ports in the District, at GOPĀLPUR, CALINGAPATAM, and BĀRUVA. The first two are open to foreign as well as coasting trade. The total value of the foreign exports and imports at these during 1903–4 was 10 lakhs and Rs. 9,000 respectively. Myrabolams are exported to London and Antwerp, hemp to London, rice to Colombo

and Galle, and oilseeds and turmeric to Colombo. Matches are imported from Christiania and Hamburg, areca-nut from Penang, coco-nut oil from Galle, refined sugar from Colombo, and spirits, wines, and many miscellaneous articles from the United Kingdom.

The total value of the exports and imports carried coastwise to and from all three ports during 1903-4 was Rs. 10,87,000 and Rs. 2,60,000 respectively. The exports go chiefly to Calcutta, Madras, Bombay, Negapatam, Cochin, Calicut, Tellicherry, Cannanore, Mangalore, Rangoon, and Moulmein; they consist mainly of coir, grain and pulse, hides and skins, oilseeds, railway sleepers, apparel, and turmeric. The principal imports come from Calcutta, Bombay, Madras, Cuddalore, Cochin, and Rangoon; they are largely hardware and cutlery, metals, kerosene oil, haberdashery, and gunny-bags. There is much passenger traffic to and from Rangoon at the three ports.

Of the imports by land, grain is the chief. It comes from Orissa, salt being sent there in return, and travels largely by way of the Chilka canal, which connects the Chilka Lake with the Rushikulya river. Turmeric is largely exported from the Agency tract, not only to the low country within the District, but also to the Central Provinces and Orissa. Berhampur, Gopālpur, and Calingapatam are the chief centres of general trade. The principal trading castes are Komatis in the plains and Sondis in the Māliahs. Most of the internal trade is carried on at weekly markets. The most important of these are held at Narasannapeta, Battili, Hiramandalam, and Lakshminarasupeta in the plains, and at Rāyagada, Chelligodo, Sarangodo, and Tikkāballi in the Māliahs. Those in the plains are managed by the local boards, and in 1903-4 Rs. 3,960 was collected in the shape of tolls.

Railways and roads. The east coast section of the Bengal-Nāgpur Railway (standard gauge) runs through the District from north to south, not far from and nearly parallel to the coast. At Naupada a branch runs to the salt factory there, and the 2 feet 6 inches line which the Rājā of Parlākimedi has constructed through his estate meets it at the same place.

The total length of metalled roads in the plains is 729 miles, and of unmetalled roads 12 miles, the whole being maintained from Local funds. There are avenues of trees along 650 miles. The chief is the trunk road from the Bengal frontier on the north to the borders of Vizagapatam on the south. Except the Goomsur *tāluk*, the low country is well supplied with communica-

tions. The Agency tract has 508 miles of road, of which only 84 miles are metalled and 221 more are practicable for carts. European officials whose duty takes them to the Māliahs carry their baggage on elephants, and a certain number of these animals are allotted to each of them and maintained at Government expense. Six chief routes lead to the Māliahs from the plains, all of which are passable by loaded elephants and horses. Two of these, the Kalingia and Taptapāni *ghāts*, can be used by carts. A third, the Puipāni *ghāt*, is also, though steep, practicable for carts in the dry season. In the Goomsur Māliahs a road from Kalingia to the Bengal frontier is metalled. Another, known as the Kālipāno road, leads from Kalingia to Udayagiri, thence to Balligudā, and on to Kālāhandī in Bengal. An old military road passes from Balligudā to Rāmagiri-Udayagiri and on to Parlākimedi. This runs through the heart of the Agency tract, but owing to a series of *ghāts* it cannot be used by carts.

Famine.

Famine visited the District in 1790–2, in 1799–1801, in 1836–9, in 1865–6, in 1888–9, and in 1896–7. That of 1888–9 affected no other area, and is known as the Ganjām famine. The first three were partly due to the disturbed state of the country. Except for the cyclonic rain in November, 1888, the seasons were similar in the last three. In all of them a partial failure of the south-west monsoon was followed by an almost entire failure of the north-east monsoon. The highest numbers relieved at any one time during the course of each of them were: in 1866, 30,500 on gratuitous relief and 1,500 at relief works; in 1889, 11,632 in kitchens, 93,561 on other gratuitous relief, and 20,726 at relief works; and in 1897, 8,897 in kitchens, 79,473 on other gratuitous relief, and 46,529 at relief works. Weavers were also relieved on all three occasions. The cost of these three famines to Government, including advances of money and the remissions of land revenue granted in consideration of the failure of crops, was $4\frac{1}{3}$, 11, and 14 lakhs respectively. In all three, small-pox and cholera caused many deaths; but the small-pox of 1897, which claimed 6,028 persons as its victims in four months, was unprecedented in the annals of the District.

District subdivisions and staff.

For administrative purposes Ganjām is arranged into five subdivisions, of which three, Chicacole, Berhampur, and Balligudā, are in charge of Indian Civilians, and two, Goomsur and Chatrapur, of Deputy-Collectors recruited in India.

The *tāluks* and *zamīndāri tahsīls* included in each of these are as follows: in Chicacole, Chicacole, Narasannapeta, Tek-

kali, Parlākimedi and the Parlākimedi Agency; in Berhampur, Berhampur, Ichchāpuram, Sompeta and the Sompeta Agency; in Balligudā, the Balligudā Agency, Udayagiri Agency, and Rāmagiri Agency; in Goomsur, Goomsur, Aska, Surada and the Surada Agency; and in Chatrapur, Ganjām and Perushottapur. The Balligudā subdivision consists entirely of Agency country, and the divisional officer is known as the Special Assistant Agent. Chicacole, Berhampur, and Goomsur are the only *tāluks* in the whole of the ordinary tracts which are not *zamīndāri* land. A *tahsīldār* and a stationary sub-magistrate are stationed at the head-quarters of each of these, and at Berhampur a town sub-magistrate as well. The *zamīndāri tahsīls* and Agencies are in charge of deputy-*tahsīldārs*. Those at Parlākimedi, Sompeta, and Surada look after both the ordinary and Agency tracts known by these names. The Deputy-Collector at Chatrapur exercises magisterial jurisdiction over a portion of the Berhampur *tāluk*. The head-quarters of the Collector, the Superintendent of police, the District Forest officer, and the District Registrar are at Chatrapur, while the District Judge, the Executive Engineer, and the District Medical and Sanitary officer live at Berhampur. Chatrapur has a Civil Surgeon; and there are two Assistant Superintendents of police in the District, one at Parlākimedi and the other at Russellkonda.

Civil and criminal justice and crime.

The District Judge and four District Munsifs dispose of the civil suits in the plains; but cases arising in the Māliahs, where, as already explained, the whole of the ordinary law is not in force, are dealt with by the Collector in virtue of his extraordinary powers as Agent to the Governor, by the three divisional officers in their capacity as Assistant Agents, and by six deputy-*tahsīldārs* who exercise the powers of a District Munsif in the Māliah tracts within their jurisdiction. Litigation is extremely rare in these backward hill tracts. In an average year less than one in 3,000 of their population bring any kind of suit, whereas in the Presidency as a whole the corresponding figure is one in 115. The hill people often settle their little differences by primitive methods of their own. They still resort to trial by ordeal: the parties each nominate a representative, who endeavours to stay under water as long as possible, and the verdict goes to the side whose champion is victorious.

The chief court of criminal justice in the plains is that of the Sessions Judge, and, in the Agency tract, that of the Agent to the Governor. The senior of the three Assistant Agents is an Additional Sessions Judge for the latter, and sessions cases

may be transferred to him by the Agent for disposal. Serious crime is rare in these tracts, and petty offences are usually dealt with by the heads of villages without resort to the police or the courts of law. The Khonds have a reputation for honesty and truthfulness, but the Pānos are notorious thieves. In the District, as a whole, dacoities and robberies are rare, but housebreaking and cattle theft are frequent and are often committed by professional thieves. The number of murders or cases of culpable homicide reported averages fifteen a year; they are due in a majority of cases to jealousy or other personal motives.

Land revenue administration.

Little is known of the revenue history of the District in the Hindu and Muhammadan periods. The hill country seems, from time immemorial, to have been parcelled out among small military chieftains, who held hereditary posts and appropriated the entire revenues, subject to the condition of performing military service for their suzerains when called upon. The plains were held by petty non-military chiefs, some of whom represented old families, while others were little more than government officers entrusted with the collection of the revenue of various tracts. Under the Hindu governments the people seem to have paid an assessment of half of the gross produce in kind; but after the Muhammadans conquered the country the *zamīndārs* employed by them imposed fixed rates on the land (to which extra assessments were afterwards added), by which the ryots' share of the rice crops, the chief cultivation of the country, was nominally reduced to one-third, but actually to one-fifth of the gross produce; in the case of 'dry' grains the shares of the ryot and the government were equal. This division of the produce seems to have continued till the introduction in 1817 of the *ryotwāri* settlement.

When the English assumed charge of the District in 1766, they found that the cultivation was divided into *zamīndāri* and *haveli* (or household) land. At first the Company rented out both these classes of land. On the receipt of the orders of Government directing the introduction of a permanent settlement into the Presidency, a Special Commissioner was appointed to examine the matter, and by 1804 the whole District was permanently assessed. The *zamīndāris* were confirmed to their holders in perpetuity, and the *haveli* lands were parcelled out into small estates and sold by auction to the highest bidder. Some of the *zamīndārs* and other proprietors subsequently fell into arrears; and between 1809 and 1850 the estates of these one after the other eventually reverted to Government, and

now form the Government *tāluks* of Chicacole, Berhampur, and Goomsur.

The *ryotwāri* system was first introduced in the Chicacole *tāluk* in 1817. The fields, including both arable and waste land, were measured, classified, and assessed; but there were great anomalies in the assessment, and it was not until 1878 that revenue administration reached the stage at which it now stands.

A regular survey of all the Government *tāluks* was begun in 1866 and a systematic settlement in 1875. The work was completed in 1884, and resulted in an increase in the three *tāluks* of 16 per cent. in area over that shown in the old revenue accounts, and of 10 per cent. (or Rs. 60,000) in revenue. At present the average assessment per acre on 'dry' land is R. 0–15–8 (maximum, Rs. 4; minimum, 4 annas), and that on 'wet' land Rs. 3–12–11 (maximum, Rs. 5–8; minimum, Rs. 1–4).

The revenue from land and the total revenue in recent years are given below, in thousands of rupees:—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue .	14,43	16,24	18,03	17,95
Total revenue .	18,99	20,80	25,76	28,68

The Local Boards Act V of 1884 was not in force in the Agency tract till 1906, when 122 villages in the country below the Parlākimedi Hills were brought under that enactment. The local affairs of the plains, outside the three municipalities of CHICACOLE, PARLĀKIMEDI, and BERHAMPUR, are managed by the District board and the three *tāluk* boards of Chicacole, Berhampur, and Goomsur, the areas under which correspond with the three administrative subdivisions of the same names, excluding the Agency tracts in them and including, in the case of the Berhampur *tāluk* board, the jurisdiction of the Deputy-Collector at Chatrapur. The total expenditure of these boards in 1903-4 was about 4 lakhs, more than half of which was devoted to roads and buildings. The chief source of their income is, as usual, the land cess. In addition, fifteen Unions are managed by bodies called *panchāyats* established under the Local Boards Act. Local boards.

The police force of the District is controlled by a Superintendent and the two Assistants already mentioned. There are fifteen police inspectors and sixty-three police stations. Bodies, Police and jails.

of reserve police are maintained at Chatrapur and at Balligudā in the Agency tract, numbering 106 and 94 respectively, each in charge of an inspector. They are picked men, better armed than the rest of the force, and are capable of dealing with any disturbances in the Agencies. The ordinary force also includes 888 head constables and constables, and 809 rural police. In addition to the District jail at Berhampur there is a smaller prison at Russellkonda, under the charge of the divisional officer, which was established to save convicts belonging to the hill tracts from the fever which attacks them if they are brought down to the coast; and 13 subsidiary jails which, taken together, can contain 271 prisoners.

Education. In the literacy of its population, the plains portion of the District stood seventeenth among the twenty-two Districts of the Presidency at the Census of 1901, only 4·4 per cent. (males 8·9 and females 0·4) being able to read and write. In knowledge of English the Telugus surpass the Oriyās, but the Oriyās are superior in vernacular education. The Agency tract is educationally the most backward area in the whole Presidency, only seven persons in 1,000 being able to read and write. Only 56 females in the whole tract were returned as literate at the Census of 1901, and only 26 people, including all the officials, as knowing English. Special efforts are being made to improve this state of things. In 1903–4 there were 165 schools in the Agency tract, all but one of which were of the primary grade. Telugu is taught in one of these (in the Parlākimedi Māliahs) and Oriyā in all the others. Almost all the teachers are Oriyās, and the pupils are largely Khonds, Savaras, Pānos, and Oriyās. In the District as a whole the number of pupils under instruction in 1880–1 was 13,067; in 1890–1, 37,784; in 1900–1, 38,679; and in 1903–4, 40,802. On March 31, 1904, the District contained 1,469 public educational institutions of all kinds. Of these, 1,449 were primary schools, 14 were secondary, and 4 training schools. There were two second-grade colleges, at Parlākimedi and Berhampur, and 111 private schools. Of the public institutions 96 were managed by the Educational department, 100 by Local boards or municipalities, 951 were aided, and 322 unaided. They had 2,668 girl students, but all except 4 of these were in primary classes. The District is the most backward in the Presidency in female education, only 1·7 per cent. of the girls of school-going age being under instruction. Among Musalmāns, who form a smaller proportion of the population than anywhere else in the Presidency, the

percentages were 76·4 for males and 19·4 for females. About 1,700 Panchama pupils were under instruction on March 31, 1904. Most of these were in 51 schools specially maintained for them. The total expenditure on education in 1903-4 was Rs. 1,89,000, of which Rs. 52,700 was derived from fees. Of the total, 68 per cent. was allotted to primary schools.

Ganjām possesses 7 hospitals and 16 dispensaries, besides 3 police hospitals at Chatrapur, Aska, and Russellkonda, with accommodation for 110 in-patients. In 1903 the number of cases treated was 229,186, of whom 1,266 were in-patients, and 4,098 operations were performed. The expenditure was Rs. 50,000, four-fifths of which was met from Local and municipal funds. The Collector and the Special Assistant Agent take a Hospital Assistant with them on their periodical tours in the Agency tract, and thus bring medical aid within reach of the hill tribes. Hospitals and dispensaries.

During 1903-4 the number of persons successfully vaccinated was 32 per 1,000, compared with an average for the Province of 30. There has been a gradual improvement in the matter in recent years. Vaccination is compulsory only in the three municipalities. The number of persons successfully operated on in the hill tracts, where there is a special establishment for the purpose, was 43 per 1,000 of the population. Vaccination.

[For further information regarding Ganjām see the *District Manual* by T. J. Maltby (1882), S. C. Macpherson's *Report on the Khonds* (Calcutta, 1842), and the printed reports of Mr. Russell's mission and of the Meriah Agents from 1836 to 1861.]

Balligudā Subdivision.—Subdivision of Ganjām District, Madras, consisting of the Agency *tāluks* of BALLIGUDĀ, RĀMAGIRI, and UDAYAGIRI.

Balligudā Taluk.—North-western Agency *tāluk* of Ganjām District, Madras, with an area of 1,390 square miles. It consists of a confused mass of wooded hills intersected by deep ravines, and averages about 3,000 feet in elevation. The population, which consists mostly of Khonds, was 104,714 in 1901, compared with 107,213 in 1891. They live in 472 villages. The land revenue payable by the *patros* (headmen) and the chief of Katingia is Rs. 170. The head-quarters are at Balligudā, which is also the temporary station of the Special Assistant Agent and the Assistant Superintendent of police. To overawe the somewhat lawless Khonds, a force of 80 reserve police is stationed there in charge of an inspector. Excellent

grass mats are made near it and are largely exported to the plains. The Balligudā Khonds are of a wilder and more warlike type than those in Udayagiri. They are, however, getting accustomed to civilized rule, have given up Meriah (human) sacrifices since 1857, and have not taken part in any serious disturbance for nearly forty years.

Rāmagiri.—Agency *tāluk* in the west of Ganjām District, Madras, with an area of 1,191 square miles. The population, consisting mostly of Savaras, was 74,393 in 1901, compared with 64,143 in 1891. They live in 542 villages. No land revenue is realized, except a *nazarāna* of Rs. 593 paid by the *zamīndārs* of Peddakimedi and Surangi and four *patros* (headmen). The head-quarters are at Rāmagiri-Udayagiri, which is connected with Berhampur by a good road. Rāmagiri is the most sparsely populated *tāluk* in the District and the worst in point of climate. Timber and other hill produce are exported, but the supply of good *sāl* trees in accessible positions is very limited. Excellent oranges are grown. The western part of the *tāluk* is very mountainous and difficult of access.

Udayagiri.—Northernmost Agency *tāluk* of Ganjām District, Madras, lying between 19° 50′ and 20° 23′ N. and 84° 13′ and 84° 39′ E., with an area of 504 square miles. It is a wild tract, largely covered with hill and jungle and intersected by rapid torrents. The population, consisting mostly of Khonds, was 76,858 in 1901, compared with 73,384 in 1891. They live in 401 villages. The *tāluk* consists of the Goomsur Māliahs and the Koradā and Ronabā estates, the head-quarters being at Goomsur-Udayagiri. The Ronabā chief pays nothing to Government. Koradā pays Rs. 15 yearly. In the Goomsur Māliahs, the Government derives revenue only from the Chokkapād *khandam*, managed as a *ryotwāri* area, which yielded a land revenue of Rs. 2,500 in 1903-4. A special feature of Udayagiri is that a large extent has been permanently reclaimed from jungle and is cultivated with 'dry' crops. The Khonds who inhabit it are no longer able to depend on hunting or jungle produce for a living, and are much more liable to suffer from famine than those in Balligudā. They are, however, better educated.

Goomsur Subdivision.—Subdivision of Ganjām District, Madras, consisting of the *tāluk* of Goomsur and the *zamīndāri tahsīls* of Surada and Aska.

Goomsur Tāluk.—Northernmost Government *tāluk* in the plains of Ganjām District, Madras, lying between 19° 35′ and 20°

17′ N. and 84° 8′ and 84° 59′ E., with an area of 1,141 square miles. The population in 1901 was 200,357, compared with 185,870 in 1891. They live in 697 villages. The demand for land revenue and cesses in 1903–4 was Rs. 3,28,000. The head-quarters are at RUSSELLKONDA (population, 3,493). More than half of the *tāluk* consists of forest, and this is the most important timber-growing area in the District, the *sāl* (*Shorea robusta*) being especially fine. The land is fertile and much of it is irrigated by the RUSHIKULYA project and several large streams, but a considerable area is still unoccupied. Sugar-cane is grown in the centre and south. The *paiks*, who hold about 10,000 acres of land on favourable tenure on condition of performing service if called upon, are an interesting remnant of the old feudal system. They are now generally employed as guards at public offices.

Surada.—*Zamīndāri tahsīl* in the interior of Ganjām District, Madras, consisting of the Bodogodo *zamīndāri* and some Agency tracts, with an area of 198 square miles. The population in 1901 was 23,230, compared with 20,380 in 1891. They live in 198 villages. The demand for land revenue and cesses in 1903–4 was Rs. 9,350. The head-quarters are at Surada, which is situated in the adjoining Government *tāluk* of Goomsur. The country is most picturesque, being diversified with wild hills and valleys buried in thick forest. The only places of commercial importance are Bodogodo and Gazilbādi. A weekly market is held every Thursday at the latter; and the products of the neighbouring hills, such as saffron, oilseeds, red gram, *kamela* dye, arrowroot, and *sīkāyi*, are brought to it for export to Berhampur.

Aska Tahsīl.—*Zamīndāri tahsīl* in the interior of Ganjām District, Madras, lying between 19° 15′ and 19° 45′ N. and 84° 18′ and 84° 45′ E., with an area of 407 square miles. It consists of the *zamīndāris* of Dhārākota, Serugada, and Chinnakimedi, and the proprietary estates of Aska, Kurla, and Devabhūmi. The population in 1901 was 115,883, compared with 108,920 in 1891. They live in 368 villages. The demand for land revenue and cesses in 1903–4 was Rs. 1,25,000. The land is fertile and well irrigated by the RUSHIKULYA project and other sources. Rice is widely cultivated, and sugar-cane is extensively grown and made into sugar in a factory at ASKA, the head-quarters.

Chatrapur Subdivision.—Subdivision of Ganjām District, Madras, consisting of the GANJĀM and PURUSHOTTĀPUR *zamīndāri tahsīls*.

Ganjām Tahsīl.—*Zamīndāri tahsīl* in the north-east of Ganjām District, Madras, consisting of the KALLIKOTA, Biridi, Humma, and Pālūrú estates, lying between 19° 23′ and 19° 49′ N. and 84° 56′ and 85° 12′ E., adjoining the Chilka Lake and the Bay of Bengal, with an area of 308 square miles. The *tahsīl* is a picturesque tract, sloping gradually to the sea, and dotted with low hills which cause an unusually cool climate. The population in 1901 was 95,882, compared with 88,714 in 1891. They live in 324 villages. The demand for land revenue and cesses in 1903–4 was Rs. 48,500. The deputy-*tahsīldār* in charge resides at CHATRAPUR outside the *tahsīl*. The four estates of which it is made up are heavily involved in debt.

Purushottāpur.—*Zamīndāri tahsīl* in the north of Ganjām District, Madras, consisting of the ATAGADA ESTATE, and lying between 19° 30′ and 19° 52′ N. and 84° 43′ and 85° 2′ E., with an area of 294 square miles. It is bounded on the east by the Kallikota estate and on the west by the Goomsur *tāluk*. The population in 1901 was 102,396, compared with 96,529 in 1891. They live in 270 villages. The demand for land revenue and cesses in 1903–4 was Rs. 83,800. The deputy-*tahsīldār* in charge resides outside the estate at Purushottāpur in the adjoining *tāluk* of Berhampur. Owing to its situation close to the hills in the north, Atagada is perhaps the most favoured area in the District for irrigation. Three streams, the Bhāguvā, the Jagati, and the Donnai, take their rise in these hills and traverse almost the whole of the estate; and as the land slopes gradually it lends itself admirably to the utilization of their water.

Kallikota and Atagada.—Two permanently settled estates in Ganjām District, Madras, lying on the northern boundary of the Presidency between 19° 28′ and 19° 52′ N. and 84° 43′ and 85° 12′ E. While the former is impartible, the latter is partible, and was acquired in 1854 by the *zamīndār* of Kallikota by purchase at a sale for arrears of revenue. The joint area of the two is 507 square miles and their population (1901) 169,693. The *peshkash* and cesses payable by them in 1903–4 amounted to Rs. 1,11,000. The chief village, Kallikota, is beautifully situated in a basin surrounded by hills.

The Kallikota family was founded by Rāmabhuya, who was made a *zamīndār* by the Gajapati king of Orissa, Purushottama. At a later period he obtained the title of Mardarājā Deo for his services in keeping the Marāthās out of the District. In 1769 the country was in a disturbed state and was occupied

by British troops, and from 1771 to 1775 the troops were again employed in maintaining order.

The soil is fertile and well irrigated, and yields good crops. The prevailing tenure is *mustājiri*, under which the villages are rented out to middlemen who collect the assessment. The rent payable by the tenant to the landlord is generally half the gross produce.

The present Rājā succeeded in 1887 as a minor, and the estates were managed for the next five years by the Court of Wards. During this period Rs. 93,000 was spent on repairs to irrigation works, Rs. 1,34,000 of debt was cleared off, and the property was handed over to its owner in 1893 in a flourishing condition, with an income which had been increased from Rs. 2,41,000 to Rs. 3,17,000, and with a cash balance of Rs. 2,11,000. Within the next ten years the Rājā had dissipated this balance, incurred further debts, and mortgaged the two estates to his creditors.

Berhampur Subdivision.—Subdivision of Ganjām District, Madras, consisting of the *tāluk* of BERHAMPUR and the *zamīndāri tahsīls* of ICHCHĀPURAM and SOMPETA.

Berhampur Tāluk.—Easternmost of the three Government *tāluks* in Ganjām District, Madras, lying between 18° 56′ and 19° 32′ N. and 84° 25′ and 85° 5′ E., with an area of 685 square miles. The population in 1901 was 344,368, compared with 323,474 in 1891. The demand for land revenue and cesses in 1903–4 was Rs. 5,90,000. Its 'wet' lands, irrigated by the RUSHIKULYA project and some streams and tanks, are more extensive than in the other *tāluks*. It contains 549 villages, and the three towns of BERHAMPUR (population, 25,729), the head-quarters, ICHCHĀPURAM (9,975), and GANJĀM (4,397). Along the coast, the scenery is uninteresting, but the low hills to the east of Berhampur render the inland part more picturesque.

Ichchāpuram Tahsīl.—*Zamīndāri tahsīl* in the interior of Ganjām District, Madras, lying between 19° 3′ and 19° 22′ N. and 84° 15′ and 84° 46′ E., with an area of 300 square miles. The population in 1901 was 83,500, compared with 74,846 in 1891. They live in 266 villages. The demand for land revenue and cesses in 1903–4 was Rs. 61,200. The head-quarters are at ICHCHĀPURAM, which lies outside the *tahsīl* in the adjoining Government *tāluk* of Berhampur. Of the principal estates in it Chīkati is open, well cultivated, and irrigated by the Bāhudā river, while Surangi and Jarada largely consist of hill and jungle.

Sompeta Tahsīl.—*Zamīndāri tahsīl* in Ganjām District, Madras, lying between 18° 45′ and 19° 4′ N. and 84° 22′ and 84° 40′ E., south of the Ichchāpuram *tahsīl* and east of Parlākimedi, with an area of 283 square miles. It is separated from Parlākimedi by MAHENDRAGIRI, and is bounded on the east by the Bay of Bengal. The tract of country along the coast produces coco-nuts extensively, which are exported to Cuttack and other places. The population in 1901 was 102,690, compared with 95,932 in 1891. It contains one town, SOMPETA (population, 6,455), the head-quarters, and 347 villages. The demand for land revenue and cesses in 1903-4 was Rs. 47,100. Lacquer-work on wood is done at Mandasā, the chief village of the *zamīndāri* of the same name. BĀRUVA, the chief village of another estate, is one of the three seaports of the District. The other important estates in the *tahsīl* are Jalantra, which was sold to satisfy its late proprietor's debts and has been purchased by the Mahārājā of VIZIANAGRAM, and Budārasingi, which is heavily involved in debt. The Sompeta Agency consists of the Jarada, Mandasā, and Budārasingi Māliahs, which are held by the *zamīndārs* of the estates of those names under separate *sanads*, and of the Jalantra Māliahs, which have been attached owing to the interference of their former proprietor in the internal affairs of the Māliahs, and are now under Government management.

Chicacole Subdivision.—Subdivision of Ganjām District, Madras, consisting of the *tāluk* of CHICACOLE and the *zamīndāri tahsīls* of NARASANNAPETA, PARLĀKIMEDI, and TEKKALI.

Chicacole Tāluk.—Southernmost of the three Government *tāluks* in Ganjām District, Madras, lying between 18° 12′ and 18° 40′ N. and 83° 51′ and 84° 18′ E., with an area of 373 square miles. The population in 1901 was 223,373, compared with 212,608 in 1891. They live in 305 villages and two towns, CHICACOLE (population, 18,196), the head-quarters, and NARASANNAPETA (7,886). The demand for land revenue and cesses in 1903-4 was Rs. 4,16,500. The 'wet' land of a large portion of the *tāluk* is irrigated by river channels from the Lāngulya and the Vamsadhāra.

Narasannapeta Tahsīl.—*Zamīndāri tahsīl* in Ganjām District, Madras, consisting of several petty proprietary estates which adjoin the Government *tāluk* of Chicacole, with an area of 51 square miles. The population in 1901 was 26,452, compared with 24,878 in 1891. They live in 41 villages. The head-quarters, NARASANNAPETA town, is outside its limits. The demand for land revenue and cesses in 1903-4 was

Rs. 40,400. The Urlam estate, which is nearly 20 miles in area, is a prosperous tract, being fertile and irrigated by river channels from the Vamsadhāra. Bell-metal vessels are made at Mobagām.

Parlākimedi Tahsīl.—Westernmost *zamīndāri tahsīl* in Ganjām District, Madras, lying between 18° 31′ and 19° 6′ N. and 83° 49′ and 84° 25′ E., with an area of 972 square miles. The population in 1901 was 311,534, compared with 304,359 in 1891. The *tahsīl* contains one town, PARLĀKIMEDI (population, 17,336), the head-quarters, and 1,015 villages. The demand for land revenue and cesses in 1903–4 was Rs. 1,16,000. The *tahsīl* consists of the PARLĀKIMEDI ESTATE, which is described separately, and the Parlākimedi Māliahs. The latter are attached to the estate and are chiefly inhabited by Savaras. They have an area of 358 square miles, and contained a population of 55,120 in 1901, compared with 52,302 in 1891. They consist of the forts (as the head-quarter villages are termed) and *muttahs* (groups of villages) of the ten Bissoyis, or hill chiefs. Of their 348 villages, 122 are situated below the *ghāts* and the rest above. In 1894 the Rājā of Parlākimedi brought a suit in the Agent's court to obtain possession of these Māliahs and won his case. On appeal it was held by the High Court that he had no right to any portion of them. A further appeal to the Privy Council was dismissed, and the Government has ordered the introduction of a *ryotwāri* settlement in the 122 villages below the *ghāts*. The Bissoyis hold the *muttahs* as service *ināmdārs*, on condition of keeping order in the hill tracts and maintaining an establishment of *sardārs* and *paiks*. The latter may be described as the rank and file, and the former as the titular commanders of a semi-military force which the Bissoyis employed in olden days to overawe the Savaras, and to garrison posts at the passes as a check upon their irruptions into the low country. The Bissoyis pay a quit-rent called *kattubadi*, and this was included in the assets on which the *peshkash* of the Parlākimedi *zamīndāri* was fixed. They collect *māmūls* (customary fees), which were settled and fixed in 1881, from the Savaras. The Māliahs contain considerable forests in which is some good *sāl* (*Shorea robusta*). The highest point in them is Devagiri, 4,535 feet above the sea.

Parlākimedi Estate.—Largest permanently settled impartible estate in Ganjām District, Madras, lying in the west of the District, with an area of 614 square miles, and a population (1901) of 256,414. In 1903 the *peshkash* and cesses amounted to Rs. 1,05,900.

The Rājā claims descent from the Orissa Gajapatis. The whole Kimedi country, consisting of the present *zamīndāris* of Parlākimedi, Peddakimedi, and Chinnakimedi, was under one ruler until 1607; but in that year the Kimedi Rājā allotted Peddakimedi and Chinnakimedi to his younger son, whose descendants subsequently divided them into the two existing *zamīndāris* of those names. The British first came into contact with the Parlākimedi family in 1768, when Colonel Peach led a detachment against Nārāyana Deo, the *zamīndār*, and defeated him at Jalmūr. In 1799 the Company temporarily assumed control of the estate for breach of an engagement. Restored to the family, this difficult country was the scene of continued disturbances for many years. In 1816 it was ravaged by Pindāris; in 1819 it was found necessary to send a Special Commissioner, Mr. Thackeray, to quell a rising in it; while in 1833 a field force was sent under General Taylor, and peace was not finally restored till 1835. No further disturbance took place for twenty years, but in 1856–7 the employment of a small body of troops was again necessary to restore order.

The estate was under the management of the Court of Wards from 1830 to 1890, owing to the incapacity of two successive Rājās. When the estate was taken under management there was no money in hand and the *peshkash* was heavily in arrears. During the management considerable improvement was effected in its condition, a survey and settlement being made, good roads constructed, sources of irrigation improved at a cost of 29 lakhs, and cultivation greatly extended; the income rose from Rs. 1,40,000 to Rs. 3,86,000, and the cash balance in 1890 amounted to nearly 30 lakhs. The Rājā who then succeeded has recently died, and the estate is again under the management of the Court.

Parlākimedi is singularly favoured by nature, the soil being fertile and irrigation available from the Vamsadhāra and Mahendratanaya rivers, a channel from the latter, and many large tanks. The lands are lightly assessed, and the ryots are much better off than in the other *zamīndāris* of the District.

There are 120 miles of metalled road in the estate. A light railway of 2 feet 6 inches gauge, 25 miles in length, was constructed by the late Rājā at a cost of 7 lakhs from Naupada, a station on the East Coast Railway, to PARLĀKIMEDI, the chief town of the *zamīndāri*. This is the first work of the kind undertaken by a private individual in Southern India. Besides its capital, the chief villages in the estate are MUKHA-

LINGAM, a place of pilgrimage, and Pātapatnam, Battili, and Hiramandalam, which are centres of trade.

Tekkali Tahsīl.—*Zamīndāri tahsīl* in the south-east of Ganjām District, Madras, consisting of the Tarla *zamīndāri* and several other proprietary estates, and lying between 18° 30′ and 18° 53′ N. and 84° 9′ and 84° 31′ E., on the coast of the Bay of Bengal, with an area of 275 square miles. The population in 1901 was 124,626, compared with 115,553 in 1891. The *tahsīl* contains one town, TEKKALI (population, 7,557), the head-quarters, and 350 villages. The demand for land revenue and cesses in 1903–4 was Rs. 56,500. It is the driest area in the District, chiefly depending upon rainfall and rain-fed tanks. The soil is generally fertile, but owing to the want of sufficient irrigation the crops occasionally fail.

Aska Village.—Head-quarters of the *tahsīl* of the same name in Ganjām District, Madras, situated in 19° 36′ N. and 84° 40′ E., midway on the road from Berhampur to Russellkonda, immediately above the confluence of the Rushikulya and Mahānadī rivers. Population (1901), 4,031. It is chiefly known for its sugar factory and distillery, which belong to Mr. F. J. V. Minchin, and in 1903 employed an average of 393 hands daily. The principal feature of its operations is the extraction of sugar direct from the cane by the diffusion process. This is worked by a battery imported from Austria, and it is stated that 25 per cent. more sugar can thus be extracted than by powerful cane mills driven by steam. In 1903 the out-turn of sugar was valued at Rs. 1,71,000, and that of spirit at Rs. 79,000. The sugar is chiefly disposed of in the Berhampur market, and the spirit is supplied to the excise tracts of the District under a monopoly contract with the Government. The season for sugar manufacture is from January to the end of March. Besides country spirit, other alcoholic liquors are manufactured in the works and also aerated waters. Aska is the head-quarters of a District Munsif and the residence of the proprietors of the Aska, Kurla, and Devabhūmi estates. It possesses a town hall, the gift of Mr. Minchin, and a fine native *chattram* (rest-house) constructed from public subscriptions. A park is being laid out to commemorate the coronation of His Majesty the present King-Emperor.

Bāruva.—Seaport and station on the East Coast Railway in the Sompeta *tahsīl* of Ganjām District, Madras, situated in 18° 53′ N. and 84° 36′ E. Population (1901), 4,161. Coconut oil and coir rope are made in the neighbourhood. The port, which is open only to coasting trade, is marked by two

obelisks 50 feet high, built on a site 15 feet above the sea, bearing north-west from the usual anchorage. Government has planted a casuarina grove to the south-west of the custom-house to protect the building from drifting sand, and this also serves as a landmark to mariners. The only steamers touching at the port are those of the British India Steam Navigation Company, which call weekly on their voyages between Cocanāda and Rangoon. In 1903-4, 9,500 native passengers travelled to Burma and 7,650 returned by these boats. In the same year the exports to Burma, chiefly coir rope and dried fish, were valued at Rs. 13,000. There were no imports from Burma.

Berhampur Town (*Barampuram*).—The largest place in Ganjām District, Madras, and the head-quarters of the subdivision and *tāluk* of the same name, situated in 19° 18′ N. and 84° 48′ E., on the trunk road from Madras to Calcutta, and on the East Coast Railway, 656 miles from Madras and 374 miles from Calcutta. Population (1901), 25,729, of whom 23,857 are Hindus, 1,224 Musalmāns, and 641 Christians. Until quite recently it was a cantonment, but the troops have been removed. It is the head-quarters of the District Judge, the Executive Engineer, and the District Medical and Sanitary officer.

Berhampur was constituted a municipality in 1867. The municipal receipts and expenditure during the decade ending 1903 averaged Rs. 32,000, and in 1903-4 amounted to Rs. 30,000. The receipts consist chiefly of taxes from houses and land and tolls. The council has built a fine market laid out on the standard plan. The eastern half of the town, which is known as Bhapur, is clean and healthy; but the western half, called Pāta-Berhampur, the original village from which the present town has grown, is overcrowded. The water-supply of Berhampur from the canals of the RUSHIKULYA project was estimated to cost Rs. 4,02,300 for a complete scheme and Rs. 2,97,700 for a partial scheme; but the undertaking has been abandoned owing to want of funds. A cheaper scheme is now under consideration.

The town has an aided second-grade college, endowed with a lakh of rupees by the Rājā of Kallikota, to which is attached a Victoria Memorial hostel for boarders. In 1903-4 it had an average daily attendance of 342 boys, of whom 28 were reading in the F.A. classes. It is managed by a committee, over which the president of the District board presides. The District jail, constructed in 1863, contains accommodation for 260 prisoners, who are employed in weaving, coir manufacture, carpentry,

and oil-pressing; in an average year about 4,600 yards of cloth of various kinds, 1,700 lb. of gingelly oil, and 100 coir mats are manufactured. The Jubilee hospital at Berhampur, constructed from public subscriptions in commemoration of the Golden Jubilee of Her Majesty the late Queen-Empress, was opened in 1893. The chief industry in the town is the weaving of fine silk and *tasar* silk cloths of different colours. Sugar is also manufactured in considerable quantities.

Calingapatam.—Port in the Chicacole *tāluk* of Ganjām District, Madras Presidency, situated in 18° 20′ N. and 84° 8′ E., at the mouth of the Vamsadhāra river, 17 miles from Chicacole. Population (1901), 5,019. It was one of the early seats of Muhammadan government in the Telugu country. Signs of its ancient importance are still visible in the ruins of many mosques and other buildings. After rain, small gold coins of great age are found on the site of the old city. Having a safe anchorage, it is a regular place of call for steamers. The port is an open roadstead, protected on the south by a sandy point and some rocks which extend seaward about half a mile from the shore. These rise above water near the land, but are submerged farther out. On this sandy point, about a mile south of the port, stands a lighthouse 73 feet in height, exhibiting a white occultating light, visible 14 miles at sea in clear weather. It is protected from the sandhills which are drifting towards it, and threaten to bury it, by a casuarina plantation. The exports from Calingapatam, consisting chiefly of grain and pulse, myrabolams, and turmeric, were valued in 1903–4 at 6 lakhs. The imports, mainly haberdashery, glass ware, and gunny-bags from Indian ports, were valued at only Rs. 12,000. The coasting trade has decreased considerably since the construction of the East Coast Railway. Calingapatam possesses one of the four salt factories of the District. The pans cover an area of 517 acres, and yielded a revenue in 1903–4 of Rs. 3,27,000.

Chatrapur Village.—Head-quarters of the Collector, the Superintendent of police, and the Forest officer of Ganjām District, Madras, situated in 19° 22′ N. and 85° E., 13 miles north-east of Berhampur on the trunk road and on the East Coast Railway. It is an unimportant place with a population (1901) of only 4,210. GANJĀM was the head-quarters of the District until 1815, but in that year, owing to a deadly outbreak of fever, the Collector's office was moved to Berhampur. It remained there till 1835, when it was transferred to Chatrapur, which is prettily situated near the sea, and has a healthy climate.

The school was endowed by a late Collector, Mr. A. P. Onslow, with some house property, including the house formerly occupied by the Collector. This building was afterwards purchased by Government and a large modern residence has been built on the site.

Chicacole Town (*Srīkākulam*).—Head-quarters of the subdivision and *tāluk* of the same name in Ganjām District, Madras, situated in 18° 17′ N. and 83° 55′ E., on the left bank of the Lāngulya 4 miles from its mouth, and on the trunk road 567 miles from Madras and 422 miles from Calcutta, and 9 miles from the station of Chicacole Road on the East Coast Railway. Population (1901), 18,196.

When the Musalmāns ruled this part of the country it was the capital of the Chicacole *Sarkār*, one of the five NORTHERN CIRCĀRS. A notable memorial of their dominion is the handsome mosque built in 1641 from the materials of a demolished Hindu temple by Sher Muhammad Khān, the first *Faujdār*, or military governor, under the Kutb Shāhi dynasty of Golconda. When the English occupied the country it was for many years an important military station, and was also for a time the civil head-quarters of the District and, until 1865, the residence of the District Judge. In 1791 the town was nearly depopulated by famine, and it again suffered severely from scarcity in 1866 and in 1877. In 1876 a furious cyclone swept over this part of the District and the Lāngulya came down in heavy flood. Trees and other débris choked the arches of the fine masonry bridge on which the trunk road crosses it at the town, and at the same time a great storm wave rushed up the river from the sea. The six centre arches of the bridge collapsed in consequence. They were afterwards rebuilt.

Chicacole is a very straggling town, with several outlying villages. It enjōys a good climate. Now that the railway passes so far away it is declining in importance. It was constituted a municipality in 1867. The municipal receipts and expenditure varied but little during the ten years ending 1902–3, averaging Rs. 27,000. In 1903–4 they amounted to Rs. 31,000, the chief source of income being the taxes on houses and lands, school-fees, and tolls. The council maintains a high school, which had an average daily attendance of 255 boys in 1903–4 and sends up candidates for matriculation. The place possesses a town hall constructed from public subscriptions, and a public library, the gift of Rao Bahādur T. V. Siva Rao Pantulu Gāru. Chicacole is known for the fine muslins and durable checks woven in it. Its muslins were at one time as famous as those

of Dacca or Arni; but the industry has suffered from the competition of machine-made fabrics, and the finer kinds are now only made to order.

Ganjām Town.—Formerly head-quarters of the District in Madras to which it gives its name, situated in 19° 23′ N. and 85° 5′ E., in the Berhampur *tāluk*, at the mouth of the Rushikulya river, on the trunk road and on the East Coast Railway. Population (1901), 4,397. The town itself and the remains of the old fort, built in 1768 as a defence against the Marāthās at Cuttack, stand on rising ground, but to the north the country is low and feverish. Ganjām was formerly a seat of considerable trade, and its factory and fort were presided over by a Chief and Council and protected by a garrison. But since the removal of the head-quarters of the District to BERHAMPUR in 1815 it has declined in importance, and the handsome buildings which it once contained have either fallen into ruins or been pulled down. The removal was occasioned by an epidemic of fever which carried off a large proportion of the inhabitants, both European and native. Ganjām was once a port, but this was closed in 1887 owing to the decay in its trade. It was reopened in 1893 for landing the material required for the railway, which was then being built, but was closed again in 1897. There is no possibility of its ever being used for private trading, owing to the heavy surf outside and the constant shifting of the sandbanks round about. The chief land trade consists in the export of rice to Orissa.

Gopālpur.—Chief port of Ganjām District, Madras, situated in 19° 16′ N. and 84° 53′ E., 9 miles south-east of Berhampur. Population (1901), 2,150. It is a port of call for the coasting steamers of the British India Steam Navigation Company, and for many other vessels. The principal exports are grain and pulse, hides and skins, *sāl* timber, hemp, coir manufactures, oilseeds, myrabolams, and dried fish; while the chief imports are sugar, piece-goods, apparel, jute manufactures, liquors, matches, kerosene oil, cotton twist, and metals. In 1903–4 the exports were valued at Rs. 14,32,000 and the imports at Rs. 2,57,000; and 7,400 passengers proceeded to and 8,300 returned from Burma. The port light (fixed white) is exhibited from a platform on the flagstaff at a height of 54 feet above high water, and is visible for 10 miles in clear weather. There is also a small red light on the extreme end of the pier-head, 25 feet above high water, and visible about 3 miles. The port is an open roadstead with no shelter whatever, but landing and shipping operations are possible throughout the year, except

occasionally when the surf is very high. An iron screw-pile pier, 860 feet in length, is useless to the shipping, as it does not extend outside the line of surf. It is undergoing rapid deterioration; but the Government has decided not to incur any further expenditure upon it, as the trade of the port has greatly diminished since the construction of the railway. The best anchorage (sand and mud) is found in 6 to 7 fathoms about 1½ miles from the shore. The sandhills in the vicinity have been planted with casuarina trees to stop further encroachment.

Ichchāpuram Town ('city of desire').—Town in the Berhampur *tāluk* of Ganjām District, Madras, situated in 19° 7′ N. and 84° 42′ E., on the trunk road and on the East Coast Railway, 15 miles south-west of Berhampur. Population (1901), 9,975. It was formerly the head-quarters of the Ichchāpuram district of Chicacole *Sarkār*, and the seat of the Muhammadan Naib. Some small mosques in ruins alone remain. To one of these followers of the Prophet come from distant places for prayer. The place is now the head-quarters of a deputy-*tahsīldār*.

Jaugada.—Ruined fort in Ganjām District, Madras, situated in 19° 33′ N. and 84° 50′ E., about 18 miles west of Ganjām town, on the north bank of the Rushikulya in the Berhampur *tāluk*, among the remains of what was once a large city surrounded by a wall. Towards the centre of the fort is a huge granite mass on which are inscribed thirteen edicts of the Buddhist emperor Asoka (about 250 B.C.). They are of special interest as being the only examples of these edicts in the Madras Presidency. Old pottery and tiles abound within the fort wall; numbers of copper coins have been found, some of which are assigned to the first century A.D.; and an old temple has been discovered buried under débris and earth.

Mahendragiri.—Peak of the EASTERN GHĀTS in Ganjām District, Madras, situated in 18° 58′ N. and 84° 24′ E., 4,923 feet above sea-level, being the second highest point in the District. This was once proposed as a site for a sanitarium for Calcutta, but its steepness and the want of sufficient water rendered it unsuitable. A bungalow near the summit commands a magnificent view, as the hill is only 16 miles from the sea and stands among the highest part of this section of the Eastern Ghāts. Two streams called the Mahendratanaya ('children of Mahendra') rise in the peak. One flows southward into the Parlākimedi *zamīndāri* and joins the Vamsa-

dhāra, while the other flows through the Budārasingi and Mandasā estates and enters the sea near Bāruva. On the top of Mahendragiri are four temples, built of enormous blocks of stone, one of which has been badly shattered by lightning. They contain inscriptions in Tamil and Sanskrit, which show that the CHOLA king Rājendra set up a pillar of victory in this wild spot to commemorate his defeat of his brother-in-law Vimalāditya (A.D. 1015–22). Below the Sanskrit version is cut a tiger, the crest of the Cholas, and in front of it two fishes, the emblem of their vassal the PĀNDYA king.

Māliahs ('highlands').—Elevated tracts in the western half of Ganjām District, Madras, comprising the country above and just adjoining the EASTERN GHĀTS, and lying between 18° 48′ and 20° 26′ N. and 83° 30′ and 84° 36′ E., with an area of 3,551 square miles. They are also called the Agencies, because they are administered by the Collector under special powers vested in him in his capacity as Agent to the Governor. They are peopled by primitive forest tribes. The ordinary courts have no jurisdiction in them, the Agent and his Assistants administering both civil and criminal justice, and much of the ordinary law of the land is not in force.

The tract consists of a series of wild, undulating plateaux, divided by lower valleys. In the north, almost the whole of the Udayagiri *tāluk* may be said to have an average elevation of 2,300 feet. Passing west to Balligudā and Pokiribondo, the general level sinks to 1,700 and 1,500 feet, and farther south of Balligudā to 1,000 feet at Kotgar. On the west of this last line is a higher plateau round Belghar, with an average elevation of 2,500 feet, and in the southern centre of the Balligudā *tāluk* is another of between 2,500 and 3,000 feet. South of this the general altitude is about 1,700 feet, again sinking in the neighbourhood of Nolaghāt in Rāmagiri *tāluk* to 1,000 feet; while still farther south the elevation once more rises, and the hills run up into the three highest peaks in the District, all of which are above 4,500 feet.

The scenery throughout is usually beautiful, and in places remains of the old heavy forest are still standing; but the continual clearing of the hill-sides for the purposes of the shifting cultivation practised by the tribes prevents the trees from attaining any size. This shifting cultivation is effected by felling and burning a piece of forest, cultivating the ground in a careless manner for two or three years, and then moving to a fresh patch. The best growth now, which is on the slopes leading up into the hill country, consists chiefly of *sāl* (*Shorea*

robusta). The chief passes into the Māliahs are the Kalingia *ghāt* from Russellkondā, the Pippalaponka *ghāt* from Gazilbādi, the Katingia *ghāt* from Surada, the Taptapāni or 'hot spring *ghāt*' (so called from a hot sulphur spring it contains) from Digupūdi, the Puipāni *ghāt* from Surangi, and the Munisinghi *ghāt* from Parlākimedi.

The Agency tracts are for the most part held on a kind of feudal tenure, the proprietors being in theory bound to render certain services when called upon. They comprise fourteen different Māliahs known by separate names, of which four, the Goomsur, Surada, Chinnakimedi, and Parlākimedi Māliahs, are Government land.

In 1901 the population numbered 321,114, living in 1,926 villages. Of the total, 139,000 were Khonds, 83,000 Savaras, 44,000 Pānos, and 46,000 Oriyās. The Pānos, who are often good-looking, have well-marked gipsy proclivities. Their occupations are trade, weaving, and theft. They live on the ignorance and superstition of the Khonds as brokers and pedlars, sycophants and cheats. Where there are no Oriyās the Pānos possess much influence, and are always consulted by the Khonds in important questions, such as boundary disputes. The Khonds live chiefly in the north and the Savaras in the south. Both are primitive people and their religious beliefs are Animistic, though those who have settled below the Ghāts have to some extent adopted the ordinary Hindu gods and rites. Their languages, which are called after them Khond and Savara, are unwritten.

The various dialects of the Khonds differ greatly in different localities, and the ways and character of the tribe vary almost as much as their dialects. Those inhabiting the Kutiā country are the most warlike and troublesome. Generally speaking, the Khonds are 'a bold and fitfully laborious mountain peasantry, of simple but not undignified manners; upright in their conduct; sincere in their superstitions; proud of their position as landholders, and tenacious of their rights.' Khond women wear nothing above the waist except necklaces. The men have one dirty cloth, the ends of which hang down behind like a tail. Their head-dress is characteristic. They wear their hair very long, and it is drawn forward and rolled up until it resembles a short horn. Round this it is the delight of the Khond to wrap a piece of coloured cloth or some feathers, and he also keeps his comb, pipe, &c., inside it. The men go about armed with a *tangi*, a sort of battle-axe, and use bows and arrows when after game. They are over-

fond of sago-palm liquor; and in March, when the *mahuā* flower falls, they distil strong drink from it, and many of the male population remain hopelessly intoxicated for days together. In places the Sondis, a caste of traders and toddy-sellers, have obtained much of the Khonds' land by pandering to their taste for liquor.

The Savaras are of poorer physique, and more docile and timid than the Khonds. They use bows and arrows like the Khonds, and dress their hair in the same sort of horn on the top of their heads. They are not, however, nearly so addicted to strong drink. They are skilful cultivators, and in some places grow rice by terracing the hill-sides with much labour and ingenuity.

The dominant race above the Ghāts are the Oriyās. The hill villages are arranged into groups called *muttahs*, over each of which is a hereditary headman, known as the *patro* or Bissoyi, who has a number of *paiks* or guards under him. With one exception all these *patros* are Oriyās. Government holds them responsible for the good order of their *muttahs*, and the Khonds almost everywhere obey them willingly.

Government derives very little revenue from the Māliahs, except from the Chokkapād *khandam* in the Goomsur Māliahs, which is managed as a *ryotwāri* area. All the *zamīndārs* and chiefs who hold Māliahs under special *sanads* (grants) pay *nazarānas* (fees) to Government, and receive fixed amounts from the *patros* of the several *muttahs*, who in their turn get fixed *māmūls* (customary payments) from the several villages in their *muttahs*.

The Māliahs had an evil repute in days gone by for frequent Meriah, or human, sacrifices to the Earth Goddess to secure good crops. The Khonds were the great offenders in this matter. The Meriah victim was formally purchased and destined for sacrifice, and on the day appointed was stupefied with intoxicants and then, after certain ceremonies, was publicly done to death, his body being cut up into small pieces which the people buried in their fields before sundown. The method of sacrifice varied. At Balligudā the victim was tied to a horizontal bar, roughly shaped to resemble an elephant's head, which turned on a vertical post. The bar was whirled round and round, and as it revolved the people hacked to shreds the still living victim. One of these diabolical contrivances is now in the Madras Museum.

Special officers were appointed to suppress this custom (and female infanticide, which was also common); but it persisted

as late as 1857, and even in 1880 an attempted sacrifice in Vizagapatam District was very nearly successful. Some hundreds of persons of both sexes who had been bought for sacrifice were rescued by the special officers, and three or four of them are still alive and in receipt of a monthly dole from Government. The Khonds now substitute a buffalo for the human victim.

Mukhalingam. — Village in the Parlākimedi *tahsīl* of Ganjām District, Madras, situated in 18° 35′ N. and 38° 59′ E., on the left bank of the Vamsadhāra, 18 miles from Parlākimedi. It is famous for its Siva temple, which is held in great veneration, and is maintained by the Rājā of Parlākimedi. A religious festival and fair is held annually on the Sivarātri, when thousands of pilgrims visit it. This and two other temples in the same village are excellent examples of the Orissan or Indo-Aryan style of architecture, which differs widely from the Dravidian style of the southern Districts, and the sculpture on them is remarkable for its elegance and precision. One of them was built in the beginning of the ninth century, and the inscriptions show that Mukhalingam was formerly inhabited by Buddhists, and that it, and not Calingapatam or Chicacole, as was once supposed, was the site of the capital of the old Ganga kings of Kalinga.

Narasannapeta Town. — Head-quarters of a deputy-*tahsīldār* in the Chicacole *tāluk* of Ganjām District, Madras, situated in 18° 26′ N. and 84° 2′ E., on the trunk road 14 miles north of Chicacole. Population (1901), 7,886, chiefly weavers and traders.

Parlākimedi Town.—Chief place in the *zamīndāri* and *tahsīl* of the same name in Ganjām District, Madras, situated in 18° 47′ N. and 84° 5′ E., 25 miles from the Naupada station on the East Coast Railway by the 2 ft. 6 in. railway which the late Rājā constructed to meet the main line there. The town stands in the midst of picturesque scenery, being situated in an amphitheatre of hills with beautiful tanks adjoining it. Its population is increasing rapidly, and in 1901 amounted to 17,336. The chief buildings are the palace, constructed for the Rājā from designs by a former Government architect at a cost of 6 lakhs, and a second-grade college, maintained entirely by the Rājā, which has a hostel attached to it. In 1903-4 the college had an average attendance of 488 students, of whom 40 were reading in the F.A. classes. The Rājā also maintains a girls' school and a rest-house for native

travellers. Parlākimedi was constituted a municipality in 1886. The municipal receipts and expenditure during the ten years ending with 1902–3 averaged Rs. 15,000 and Rs. 14,000 respectively. In 1903–4 they were Rs. 17,000. Most of the income is derived from taxes on houses and lands, and tolls. Fine mats, fancy baskets, flower-stands, cheroot-cases, &c., are made here from a species of reed. The chief trade is in rice.

Rambha.—Village in the Ganjām *tahsīl* of Ganjām District, Madras, situated in 19° 31′ N. and 85° 7′ E., on the trunk road and on the banks of the CHILKA LAKE. Population (1901), 4,028. While Ganjām was still the head-quarters of the District and contained a garrison, Rambha was a favourite resort of the Europeans who lived there; and a large two-storeyed house, built by a former Collector in 1792 and now belonging to the Rājā of Kallikota, stands in a beautiful situation overlooking the Chilka Lake. The chief trade consists in the importation of large quantities of rice from Orissa by boats across the lake and the exportation of prawns to Rangoon.

Russellkonda ('Russell's hill').—Town in the Goomsur *tāluk* of Ganjām District, Madras, situated in 19° 57′ N. and 84° 37′ E., about 50 miles north-west of Berhampur on the Loharakandi river. It is called after Mr. George Russell, who was appointed Special Commissioner in 1835 to put down the disturbances in the country round about. Population (1901), 3,493. It is the head-quarters of the subdivision and *tāluk* of Goomsur, and of the Special Assistant Agent, Balligudā subdivision. It contains a training-school chiefly intended for teachers for the schools in the Agency tract, a tannery which in 1903 employed an average of 45 persons daily and turned out 50 tons of leather valued at about Rs. 49,000, and a jail in charge of the Special Assistant Agent. This last was built for convicts belonging to the hill country, to save them from the severe fever they become liable to if sent down to the coast. It contains accommodation for 158 prisoners, who are employed in stone-quarrying, oil-pressing, weaving, rice-pounding, and making elephant harness. Russellkonda was at one time a military cantonment, but the troops were withdrawn in December, 1863.

Sompeta Town.—Head-quarters of the Sompeta *zamīndāri tahsīl* in Ganjām District, Madras, and of a District Munsif, situated in 18° 56′ N. and 84° 36′ E., near the trunk road from Madras to Calcutta, with which it is connected by a road 2 miles in length. Population (1901), 6,455.

Srīkūrmam ('holy tortoise').—Famous place of pilgrimage in the Chicacole *tāluk* of Ganjām District, Madras, situated in 18° 16′ N. and 84° 1′ E., 9 miles south-east of Chicacole. Population (1901), 6,510. The temple is dedicated to the tortoise incarnation of Vishnu. It was formerly a Saiva shrine, but is said to have been changed into a Vaishnava place of worship by the celebrated Hindu reformer Rāmānujāchārya. The gateways and pillars of the granite verandas round the temple are of great architectural beauty; and it contains many old inscriptions in Telugu and Devanāgari characters, which cover a period of 800 years from the eleventh century and afford unique material regarding the history of various early dynasties, such as the Gangas, Matsyas, Sīlas, and Chālukyas. The most important festival at Srīkūrmam is the Dolotsavam, held annually in March, at which about 20,000 pilgrims are present.

Tekkali Town.—Town in the Tekkali *zamīndāri tahsīl* of Ganjām District, Madras, situated in 18° 36′ N. and 84° 14′ E., on the Parlākimedi light railway and 5 miles off the trunk road. It is also called Raghunāthapuram in memory of Raghunāth Deo, an ancient proprietor of the Tekkali estate. Population (1901), 7,557. It is the head-quarters of the deputy-*tahsīldār* and of the proprietors of Pāta Tekkali and Nandigam estates. A town hall has been constructed to commemorate the coronation of the King-Emperor.

VIZAGAPATAM DISTRICT

Vizagapatam District (*Vaisākhapattanam*, 'town of Vaisākha,' the Hindu Mars).—One of the northern coast Districts of the Madras Presidency, lying along the Bay of Bengal between 17° 15′ and 20° 7′ N. and 81° 24′ and 84° 3′ E., about midway between Madras and Calcutta. It has a coast-line of 110 miles and an extreme inland extension of about 180 miles. In area it is the largest District in the Presidency, and one of the largest in India, covering 17,222 square miles. It is of very regular shape, and is bounded on the east by the Bay of Bengal; on the north by Ganjām District and some Native States of Bengal; west by the Central Provinces; and south by Godāvari District.

Boundaries, configuration, and hill and river systems.

Vizagapatam is for the most part hilly and picturesque, especially in its northern portion, and contains some of the wildest and least civilized areas in the Presidency. It falls into two well-defined tracts, a mountainous and for the most part jungle-clad region on the north, and an extensively cultivated plain on the south, the line of division being formed by the southern escarpment of the EASTERN GHĀTS, which pass through the District in a direction running roughly from north-east to south-west and averaging 2,000 or 3,000 feet in height. This range forms the main watershed of the country, the streams on the south and east flowing direct to the sea, while the drainage of the northern slopes passes westward by means of the Machkund, Sābari, Sileru, Bhaskel, Indrāvati, and other rivers to join the GODĀVARI. This northern drainage slope is mainly made up of the *tahsīls* which constitute the great JEYPORE ESTATE, and is composed of three fairly distinct plateaux. The southern and central of these, comprising the Padwa, Pottangi, and Koraput *tahsīls*, has an average elevation of 3,000 feet, with peaks rising here and there to over 5,000 feet, and consists of open barren uplands and cultivated valleys. North and west of this lies another plateau comprising the Nowrangapur and Jeypore *tahsīls*, 1,000 feet lower; while in the south-west angle of the District a third plateau, the Malkangiri *tahsīl*, is still lower and for the most part covered with magnificent forest. In the extreme north-western corner of the District

another watershed turns the streams rising there into the Mahānadī river; and east of this, divided from it by the State of Kālāhandī in Bengal, lies the upland part of the Pārvatipuram *tahsīl*, the confused hills of which drain into the twin valleys of the Nāgāvali (or Lāngulya) and Vamsadhāra rivers. The former of these streams rises in a remarkable mass of hills called the Nīmgiris, about 5,000 feet in elevation, and separated from the neighbouring ranges by deep valleys; the latter, which is 120 miles in length, flows into the Bay of Bengal through the adjoining District of Ganjām.

As the main watershed passes centrally through the District, the rivers are usually short. Those which run into the sea are irregular in flow; in the Jeypore country the streams are perennial, but are rapid and tortuous. Thus neither series is of importance for irrigation or navigation.

Geology.

The fundamental rocks of the District are all gneisses and igneous rocks of the Archaean group. They outcrop in lines running mainly north-east and south-west, which direction determines that of the chief plateaux and minor hill ranges. The surface rocks include, among others, horizontal terraces and plateaux 80 feet thick of high-level pisolitic laterite, lying at about 4,000 feet above the sea on parts of the watershed north of the latitude of Ḳoraput, and spreading out in the direction of the Kālāhandī State. This laterite contains much hydrated alumina and will possibly prove of value as an ore of aluminium. Other recent deposits comprise the younger alluvium of the plains and an older red lateritic loam, as at Waltair and on the lower plateaux south of Jeypore.

Botany.

The flora of Vizagapatam varies greatly with the variations in altitude and moisture which occur within the District. Along the shore are found the salt-water plants; on the dry plain farther west the ordinary trees and plants of the east coast; and on the hills, where the rainfall is heavier, the flora characteristic of the moist region of the Presidency. Sir Walter Elliot's *Flora Andhrica* contains a list, with vernacular equivalents, of the plants of this part of the country.

Fauna.

In the hill country the wild animals usual in South Indian forests are still abundant, especially in the more remote parts, which constitute one of the best game tracts left in Madras; but the only species calling for notice is the wild buffalo (*Bos bubalus*), which is found in some of the remoter parts of the Jeypore estate and nowhere else in the Presidency.

Climate and temperature.

The varied configuration of the District results in its possessing several different climates: it is moist and relaxing along

the coast, hotter and drier inland, and wettest and coldest in the hills. The yearly mean temperature of VIZAGAPATAM (Waltair) on the coast is 82°, the climate being pleasant in the cold weather but somewhat relaxing at other seasons. The most prevalent disease is malarial fever, which differs widely in intensity according to locality, being of a comparatively mild type on the plains, but endemic and exceptionally severe in the hill country of Jeypore and Pārvatīpuram. Beri-beri prevails along the coast, and elephantiasis is common, though also chiefly restricted to the coast-line.

The rainfall of the District is chiefly brought by the south-west monsoon. The heaviest fall occurs north of the Ghāts in Jeypore, and the lightest along the coast. An average of thirty years gives the rain on the coast as 38 inches; in the plains as 43; on the Ghāts as 51; and in Jeypore as 66. The highest yearly average (76 inches) is recorded from Jeypore and the lowest (28) at Polavaram on the coast. Though liable to occasional periods of scarcity due to deficient rainfall, the District cannot be regarded as a famine area, and it has also been fortunate in largely escaping other natural calamities. A serious cyclone occurred in October, 1876. At Vizagapatam 15 inches of rain fell in eighteen hours, and much damage was done to roads and buildings. The force of the wind may be gathered from the fact that it lifted the new iron dome of Mr. Narasinga Rao's observatory, which had been placed in position but not riveted down, and carried it 33 feet. Another cyclone occurred in December, 1878, when sudden floods in the rivers caused extensive damage to crops, houses, cattle and other property, besides breaching almost every large tank in the District, destroying roads, interrupting postal communication, and causing some 300 deaths. Rainfall.

In early times the border between the kingdoms of VENGI and KALINGA moved in rather a puzzling manner up and down Vizagapatam District. The whole of the District was apparently included in the Kalinga kingdom as conquered by Asoka (260 B.C.); and large portions of it were certainly ruled over by the Andhra kings of Vengi who succeeded the Mauryans. After the Andhras fell before the Pallavas (*circa* A.D. 220), Vizagapatam seems to have passed under the early Ganga kings of Kalinga; but the Eastern Chālukyas of Vengi, who appear to have driven out the Pallavas early in the seventh century, extended their northern boundary far into Vizagapatam; and the District was divided rather obscurely between the Chālukyas and the Gangas for several centuries. Both History.

kingdoms were conquered by the Cholas of Tanjore at the end of the tenth century; and Vizagapatam District probably remained under their rule for the next hundred years. On the decline of the Cholas in the twelfth century the later Gangas of Kalinga, who had been ruling a part at least of their ancient dominions as allies or feudatories of the Cholas, reoccupied the whole of Vizagapatam District, and, with brief intervals, remained in power till they fell before the Gajapatis of Orissa in the fifteenth century. The country was overrun by the Muhammadan armies of Gulbarga about 1480, and by Krishna Deva Rāya of Vijayanagar in 1515. Neither of these left permanent effects; but the Muhammadan troops of Golconda completely subverted the kingdom of Orissa about 1575, and henceforth the District belonged to the Muhammadans, and ultimately formed a part of the NORTHERN CIRCĀRS granted in 1753 to the French. The recall of Bussy from this territory to assist in the siege of Madras in 1758, Colonel Forde's expedition against and defeat of his successor, and the grant thereafter of the *Sarkārs* (Circārs) to the English by the Musalmāns are all referred to in the account of the history of GANJĀM.

A factory was founded at Vizagapatam in the middle of the seventeenth century by the East India Company. In 1757 the place, which was in no state of defence, surrendered to the French general Bussy, who was in alliance with the most powerful chief in the District, the *zamīndār* of VIZIANAGRAM, Viziarāma Rāz. The latter next instigated Bussy to attack his inveterate enemy, the *zamīndār* of BOBBILI; and the allies accordingly laid siege to the Bobbili fort, which was taken after a heroic but unavailing resistance still locally celebrated in the ballad 'Bobbili Ranga Rao.' Both these affairs are described in detail by Orme.

From this time forward the history of Vizagapatam is largely connected with the fortunes of the Vizianagram family. Between 1759 (the year of Colonel Forde's expedition from Bengal and defeat of the French at MASULIPATAM) and the end of the century they had managed to bring almost the whole of the District under their power. But by 1793 their affairs had fallen into considerable confusion; and the Madras Government, whose possession of the Northern Circārs had been finally confirmed by the emperor Shāh Alam in 1765, ordered the *zamīndāri* to be sequestrated in consequence of the heavy arrears of *peshkash*, and directed the Rājā (another Viziarāma Rāz) to reside on a fixed allowance at Masulipatam.

The Rājā set out accordingly from Vizianagram, but almost immediately halted at Padmanābham, where he was joined by 4,000 men. He then refused either to proceed or to come to any terms with the Company, and was accordingly attacked by the British troops on July 10, 1794. In the fight which followed he and almost all his followers, who rallied round him to the last, were killed. The estate was subsequently granted to his son, but was greatly reduced in size by the granting of permanent *sanads* (title-deeds) to the Rājā of Jeypore and some other *zamīndārs* for lands which they had formerly held from Vizianagram, and which their descendants still possess, and by the inclusion of the Anakāpalle *tahsīl* in the Government lands. After the cession to the Company the country was at first governed by a Chief and Council at Vizagapatam. In 1794 the District was split into three Collectorates. These were amalgamated at the time of the permanent settlement in 1802 and form the present District.

The introduction of the permanent settlement of the land revenue in 1802, and the changes in the revenue and judicial systems which accompanied it, caused much disaffection and many disturbances. These finally rose to such a pitch that in 1832 Mr. George Russell, a Member of the Board of Revenue, was sent to restore order by force. As a result of his commission Act XXIV of 1839 was passed and applied to all but the Government villages. The tracts in which it was put in force were thereby exempted from the operation of the ordinary law and placed exclusively under the Collector, in whom, in his capacity as Agent to the Governor, the entire administration of civil and criminal law was vested. They are in consequence (see the accounts of GANJĀM and GODĀVARI Districts) known as the Agency tract. In 1863, in view of the changed circumstances then existing, Vizianagram, Bobbili, and Pālkonda were excluded from the limits of the Agency, and a further contraction of these, up to the base of the hills, took place in 1865. The Agency tract, however, still includes 12,622 square miles, or 70 per cent. of the total area of the District.

Since 1839 disturbances have been rare. In 1845-8 and again in 1857-8 Golgonda gave trouble, and there were small outbreaks in Jeypore in 1849-50 and 1855-6. In 1879 the RAMPA rebellion in the neighbouring District of Godāvari spread into the Gūdem hill tracts and thence into Jeypore, but it was put down towards the end of 1880.

Archaeology.

No important archaeological remains exist in the District. There are many old forts and temples, now almost all in ruins,

but few of them call for special mention. The most famous of the shrines, which ranks next to Purī as a place of pilgrimage in the Northern Circārs, is the Vaishnavite temple at SIMHĀCHALAM, said to have been erected by Lāngūla Gajapati of Orissa. Other old temples are found at Padmanābham, Rāmatīrthālu, and UPMĀKA. In the heart of Vizagapatam town is situated the so-called Dutch cemetery, the oldest inscription in which is dated 1699.

The people.

Including the Agency tract, the District is the most populous in the Presidency. It contains 12 towns, all in the low country, and as many as 12,032 villages; but of the latter 9,436 are small hill villages containing less than 100 inhabitants each. During the thirty years ending 1901 the population has increased by 36 per cent., as compared with an increase of 22 per cent. for the Presidency as a whole. In 1871 the

Tāluk or *Tahsīl*.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Koraput Agency	671	...	611	73,818	110	− 0·9	638
Nowrangapur Agency	2,172	...	1,031	104,145	48	− 10·5	582
Jeypore Agency	1,016	...	1,213	133,831	132	− 4·8	1,977
Pottangi Agency	625	...	920	73,013	117	− 6·0	331
Malkangiri Agency	2,396	...	566	35,856	15	+ 26·8	324
Padwa Agency	1,383	...	1,418	64,415	47	+ 9·2	138
Pārvatīpuram, including Agency	799	1	498	160,523	201	+ 2·3	4,010
Bissamcuttack Agency	1,850*	...	837	59,445	*94	− 4·3	285
Rāyagada Agency	710	...	758	86,610	122	− 5·1	563
Gunupur Agency	...	...	1,149	113,682	...	− 0·1	2,452
Bobbili	268	1	167	133,577	498	+ 3·7	4,668
Sālūr, including Agency	380	1	199	97,843	257	+ 10·1	2,832
Vizianagram	294	1	191	185,670	632	+ 11·4	9,132
Pālkonda, including Agency	502	2	440	226,621	451	+ 6·3	7,056
Chīpurupalle	549	...	268	170,532	311	+ 8·9	4,502
Gajapatinagaram	333	...	228	134,553	404	+ 8·5	3,040
Bimlipatam	207	1	117	126,354	610	+ 10·0	3,254
Vizagapatam	173	1	76	110,652	640	+ 13·2	8,399
Srungavarappukota, including Agency	438	1	266	142,017	324	+ 6·5	3,597
Golgonda, including Agency	1,263	1	517	157,436	125	+ 6·5	2,624
Vīravilli, including Agency	555	...	267	216,818	391	+ 6·5	5,626
Anakāpalle	297	1	143	165,478	557	+ 8·8	4,347
Sarvasiddhi	341	1	152	160,761	471	+ 3·7	3,830
District total	17,222	12	12,032	2,933,650	170	+ 4·7	74,207

* Includes Gunupur Agency.

inhabitants numbered 2,159,199; in 1881, 2,485,141; in 1891, 2,802,992; and in 1901, 2,933,650. The District is divided into the *tāluks* and *tahsīls* of which statistics according to the Census of 1901 are given in the table on the previous page. Only three of these, Sarvasiddhi, Golgonda, and Pālkonda, are Government *tāluks*, the rest being entirely *zamīndāri* land.

The chief towns are the municipalities of VIZAGAPATAM (population, 40,892), the head-quarters of the District VIZIANAGRAM (37,270), ANAKĀPALLE (18,539), and BIMLIPATAM (10,212). By religion 99 per cent. of the people are either Hindus or Animists, and the District contains a smaller proportion of Muhammadans or Christians than any other except Ganjām. In the Agency tract nearly a third of the population are returned as Animists. The low country is thickly peopled; but in the hills the density of the population falls to 67 persons per square mile, and in Malkangiri, the most sparsely populated *tāluk* in the Presidency, to only 15.

Throughout the low country Telugu is the prevailing vernacular, but in the Agency tract an extraordinary confusion of tongues prevails. Oriyā, which is on the whole the most common language, is spoken chiefly in the western portion of the hills, but Khond and Savara are largely used in the north and Telugu in the south, while Hindī, Gadaba, and Poroja occur here and there.

Their castes and occupations.

In the low country the great majority of the people are Telugus. The most numerous communities are the three connected castes of Kāpus (513,000), Velamas (269,000), and Telagas (109,000), who are usually cultivators and traders. Next in number come the Mālas (149,000) and the Gollas (146,000), who are respectively field-labourers and shepherds. Among castes who are seldom found elsewhere the Gavaras (cultivators) and Yātas (toddy-drawers) may be mentioned.

In the Agency tract by far the largest tribe is the Khonds (see MĀLIAHS), who number 138,000; while the Porojas (92,000), Jātāpus (53,000), and Kondadoras (42,000), all three of whom are closely allied to the Khonds, are also numerous. Savaras number 50,000. Several considerable Oriyā castes which are seldom met with elsewhere also occur in these hills. Instances are the Bhūmias and Bottadas, both cultivating communities, the Dombo weavers, the Kottiyas, Mālis, Paidis, and Ronas.

The occupations of the people in the low country present no peculiar features; the great majority are agriculturists. In the Agency tract cultivation is more universally the occupation of

the people than anywhere else in the Presidency except the similar tract in Godāvari.

Christian missions. There are 7,346 Christians in the District, of whom 5,884 are natives. The flourishing Roman Catholic mission at Vizagapatam town was started in 1845 by the missionaries of St. Francis of Sales. The Protestant societies represented are the London Missionary, two Canadian Baptist Societies, and the Schleswig-Holstein Evangelical Lutheran Mission. By far the oldest in the District is the first of these, which has been working since 1805. In 1901 it had some 450 converts at Vizagapatam and other stations. The Canadian Baptists work chiefly in the plains and the Lutheran missionaries in the Agency tract.

General agricultural conditions. The soils principally prevailing in the District are of the highly ferruginous red varieties, chiefly sands and loams. These predominate near the hills, but farther out in the plains the soil becomes of finer grain, and at last the black soils of the *regar* series are met with, the best and most extensive of them being a fertile black loam. The more valuable food-crops are grown on these black soils, 'dry' grains and pulses on the red loams, and pulses on the sandy land. The agricultural year begins as a rule in June and July with the breaking of the south-west monsoon. But a peculiarity of this District is the multiplicity of its crops and harvests, cultivation and harvesting of some kind going on almost all the year round; it is only for about a couple of months, from March to May, that agricultural operations are altogether suspended.

Agricultural statistics and principal crops. As the greater part of the District is *zamīndāri* land, for which no accurate statistics exist, particulars of the cultivation and so forth are not available. In the three Government *tāluks* of Sarvasiddhi, Golgonda, and Pālkonda information is on record for 1,012 square miles (out of a total District area of 17,222 square miles); and of this, 345 square miles are covered with forest, 200 are for other reasons not available for cultivation, and only 433 square miles are cropped. Rice occupies 32 per cent. of this last, while *cambu* (*Pennisetum typhoideum*) and *rāgi* (*Eleusine coracana*), the staple food-grains of the District, are raised on 24 per cent. About 115 square miles (21 per cent.) are cultivated with pulses. Of industrial crops gingelly (*Sesamum indicum*) occupies the first place (13 per cent.). Sugar-cane, cotton, and tobacco are also grown to a large extent on the more fertile soils. The principal food-grains of the masses, the 'dry' (unirrigated) crops, *cambu* and *rāgi* (with some *cholam*), are grown with the help of the south-

west rains; consequently the failure of this monsoon (as in 1891–2 and 1896–7) causes great distress. The cultivation of indigo, formerly one of the important crops of the District, is rapidly decreasing owing to the competition of the German synthetic product.

Improvements in agricultural practice.

Owing to the prevalence of the *zamīndāri* tenure in the District and the general low grade of the average ryot's intelligence, practically no advance has been made in agricultural practice over the methods stereotyped by immemorial usage. As a rule the fundamental principles of the rotation of crops are observed, staple cereals such as *cambu* or *rāgi* being usually alternated with pulses such as black, green, or horse gram. The benefits accruing from fallowing and manuring are also generally appreciated; but hostile circumstances, such as the small capital at command, the great fluctuations of the seasons, and the general absence of firewood, which necessitates the use of cattle dung as fuel, operate to induce the average ryot to take as much as possible out of his land and put as little as possible back. He lives on his 'dry' grain crops, and looks to his gingelly, pulses, or rice to give him the wherewithal to meet Government's or his *zamīndār's* dues. As was to be expected in a District containing so much *zamīndāri* land, the ryots have taken little advantage of the Land Improvement Loans Act. During the sixteen years ending 1905 only about Rs. 33,000 has been advanced under it.

Cattle and sheep.

There are no special breeds of stock. As a rule, owing to the absence of any knowledge of the principles of breeding, the domestic animals are of inferior quality. The cattle are small but fairly strong. Goats and sheep are of the usual kinds, and are kept mainly for the manure they afford.

Irrigation.

As the majority of the rivers in the low country are short and irregular in flow, they are not of much importance for irrigation. Before the commencement of the rainy season, mud and brushwood dams are built across them at suitable points, which divert a certain amount of the monsoon floods into side channels communicating either directly with the fields to be irrigated or with storage tanks. Many of these temporary dams are gradually being replaced by permanent masonry constructions. Of the three Government *tāluks*, Pālkonda is partly watered by the Nāgāvali or Lāngulya, and Sarvasiddhi and Golgonda by the Sāradā and Varāha rivers, and by two small but picturesque natural lakes called the Komaravolu and Kondakirla Avas. The Nāgāvali is the only perennial river on the eastern side of the Ghāts, and a large scheme for the

more effective utilization of its water in the Pālkonda *tāluk* has lately been sanctioned and begun. The chief irrigation sources of the District are its tanks. There are about 1,500 of these in the three Government *tāluks*; and of the 180 square miles irrigated in that tract, which represents over 49 per cent. of the area under *ryotwāri* and 'minor *inām*' cropped in 1903-4, 102 square miles were watered from this source. The area irrigated from wells is negligible.

Forests. The only heavy forest is on the Jeypore plateau, south and west of the valleys of the Indrāvati and Sileru rivers. Throughout nearly the whole of the rest of the District the forests have been, to a greater or less extent, destroyed by the inhabitants, all gradations being found between the still well-covered outer flanks of the hills in Golgonda and the bare red schistose heights of Rāyagada and Pārvatīpuram. In the Agency tract, the system of shifting cultivation, or *podu*, under which patches of forest are felled and burnt, cultivated after a fashion for a couple of years and then abandoned in favour of fresh patches, is mostly responsible for this state of things, while in the plains the demand for firewood and the enormous flocks of goats kept in many villages have caused the denudation. The Jeypore hills contain much valuable timber, chiefly teak and *sāl* (*Shorea robusta*); but elsewhere there are two main types of forest: namely the high growth in those parts where, owing to the rocky or otherwise uncultivable character of the soil or its remoteness, shifting cultivation has not been practised; and the coppice forest which has followed the shifting cultivation or has sprung up after reservation on areas previously denuded for firewood and by goats. Owing to its proximity to the markets, the latter class of forests is perhaps the more valuable of the two, though it contains no large timber.

Forest conservancy in the District is yet in its infancy, having been practically non-existent before 1890. Since then progress has been made, and about 300 square miles of forest in the Government *tāluks* have been reserved. The greater part of this (260 square miles) is situated in Golgonda. Elsewhere, the fact that the land is *zamīndāri* prevents any direct action by Government. But in recent years forest conservancy has been introduced into the Jeypore and Vizianagram estates; and, as these make up the greater part of the District, there is hope that much of the remnants of forest still left will be preserved from further indiscriminate destruction.

Minerals. Little is known regarding the mineral wealth of the District, as it has never been systematically prospected. The only

mining of any extent now in progress is the extraction of manganese ore conducted by the Vizianagram Mining Company at various places in the Gajapatinagaram, Vizianagram, and Chīpurupalle *tahsīls*. In 1903, 63,000 tons of ore, valued at $4\frac{1}{3}$ lakhs, were mined by this Company, and a daily average of 2,700 hands were employed. Most of it is shipped from Vizagapatam to the United Kingdom. Workable iron ores exist in the Vīravilli *tahsīl*, but these are smelted only to a very small extent for local use.

Arts and manufactures. There are no arts and manufactures of any importance. In Vizagapatam town fancy European articles of ivory, tortoise-shell, and horn are made. The ornamentation usually consists of ivory fretwork or of ivory etched in black with floral and other designs, many of which are of European origin. Weaving is a common industry in almost every village, but in only a few places is the cloth made of such a nature as to cause an outside demand. The distillery at Vizagapatam, opened in 1893, manufactured in 1903 from sugar-cane 71,375 proof gallons of country spirits and employed an average of 43 hands daily. It possesses two steam continuous stills with wash-heaters and condensers, each having a capacity of 40 proof gallons per hour. The jute factory at Chittivalsa, the only one in the Presidency, was established by a European firm in 1867. It manufactures gunny-bags and cloth, possesses 100 looms and 2,084 spindles, and is driven by steam. It employed 835 operatives daily during 1903–4.

Commerce. The average value of the sea-borne trade of the District for the five years ending 1903–4 was: imports, 12 lakhs; exports, 49 lakhs; total, 61 lakhs. The whole of this is conducted through the two ports of BIMLIPATAM and VIZAGAPATAM. The principal imports are cotton piece-goods and twist and yarn, hardware, iron, and timber. The exports are chiefly manganese ore, hides and skins, grain, and raw sugar. The inland traffic is considerable between the plains and the Agency tract, pack-bullocks conveying grain and jungle produce (such as myrabolams and other tanning materials, honey, wax, &c.) down to various places at the foot of the hills, and returning with salt and other commodities not produced in the hill country. There is also a large cart-traffic in grain between the rice-growing areas of Jeypore and the plains. The chief centres of internal trade are Pārvatīpuram and Vizianagram, but nearly every large village has its weekly market. In the towns these are managed by the local boards, which in 1903–4 realized Rs. 8,600 from fees.

Railways and roads. The low country is traversed from north-east to south-west

along the coast by the state-owned East Coast Railway (standard gauge), which was opened between Madras and Vizagapatam in 1893 and up to the northern frontier of the District in the following year. Its total length in the District is 137 miles. The southern section (up to Waltair) is worked by the Madras Railway Company, and the northern section by the Bengal-Nāgpur Railway Company. A line from Raipur in the Central Provinces to join this latter section at Vizianagram, passing through Pārvatīpuram, has been sanctioned. It will be on the standard gauge and 359 miles in length, of which 133 miles will be within this District, and will provide an outlet to the sea for the produce of the Raipur country. The low country is fairly well supplied with communications, 370 miles of metalled and 617 miles of unmetalled road being maintained by the local boards. There are avenues of trees along 537 miles. In the hill country roads are naturally rarer, but rapid advance is now being made. The main channels of communication up to and through the hills are the road from Pārvatīpuram to Bengal, and that which goes from Vizianagram to Jeypore and thence on to the same Province. The *ghāt* on this latter from the foot of the hills to Koraput, known as the Pottangi *ghāt*, crosses the more formidable ravines and streams by several iron bridges. Sixty-four miles of this road are kept in repair by the Public Works department. From Jeypore and Koraput three branches from it run to the Bastar State in the Central Provinces, through the Malkangiri *tahsīl*, and into the Pottangi and Padwa *tahsīls*.

Famine. Famine visited Vizagapatam in 1791–2 and 1823–4, but few particulars have been preserved. The scarcity of 1891–2 affected it somewhat, but in recent years state relief has been found necessary only in 1896–7. The distress of that year was accentuated by the prevalence of scarcity in the neighbouring Districts, the consequent panic driving up prices far above the rates which would otherwise have prevailed. The highest number on relief was 62,500 in July, 1897. Of these, 23,000 were on works, 38,000 on gratuitous relief, and the rest were weavers. The total direct expenditure by Government amounted to 4½ lakhs, and the loss of revenue to a further 1½ lakhs. Vizagapatam is protected, except in the case of a very widespread scarcity, from an absolute dearth of food, as it has communication by railway with the fertile Districts of Kistna and Godāvari and also with Lower Bengal, by steamer with Rangoon, and by good roads with the rice-growing tracts of Jeypore and the Central Provinces.

For administrative purposes the District is grouped into five subdivisions under the control of divisional officers, four of whom are usually Covenanted Civilians and the fifth a Deputy-Collector. The twenty-three *tāluks* and *tahsīls* are distributed among these subdivisions as follows: The Vizagapatam subdivision comprises the Vizagapatam and Srungavarappukota *tahsīls*; Vizianagram comprises Vizianagram, Chīpurupalle, Gajapatinagaram, Pālkonda, and Bimlipatam; Narasapatnam comprises Golgonda, Sarvasiddhi, Vīravilli, and Anakāpalle; Pārvatīpuram comprises Pārvatīpuram, Bobbili, Sālūr, Gunupur, Rāyagada, and Bissamcuttack; and Koraput comprises Koraput, Pottangi, Jeypore, Nowrangapur, Malkangiri, and Padwa *tahsīls*. The greater part of the District, as already mentioned, is held on *zamīndāri* tenure, and the only *ryotwāri tāluks* are Golgonda, Sarvasiddhi, and Pālkonda. These three are in charge of *tahsīldārs* and, except Golgonda, are provided with stationary Sub-magistrates; the remaining twenty are under deputy-*tahsīldārs* in independent charge, who also have magisterial powers.

District subdivisions and staff.

The Agency tract includes the whole of Gunupur, Rāyagada, Bissamcuttack, Jeypore, Koraput, Pottangi, Padwa, Malkangiri, and Nowrangapur *tahsīls*, and parts of Pālkonda, Pārvatīpuram, Sālūr, Srungavarappukota, Vīravilli, and Golgonda.

For the administration of civil justice in the ordinary tracts there are six regular District Munsifs, subject to the appellate authority of the District Court. In the Agency tract nine *tahsīldārs* and deputy-*tahsīldārs* are invested with the civil powers of District Munsifs, subject to the appellate authority of their respective divisional officers, who exercise the powers of Subordinate Judges. There is, however, but little civil litigation in so backward an area, only one in 1,600 of the population bringing any kind of suit in most years, though the corresponding figure for the Presidency as a whole is one in 115.

Civil and criminal justice.

Criminal justice is dispensed by two Sessions courts, one for the ordinary tracts, presided over by the District and Sessions Judge, and one for the Agency tract. In the latter the Collector, or Agent, is the Sessions Judge, and some of the work is done by the senior Civilian divisional officer, who is an Additional Sessions Judge. In the ordinary tracts serious offences against person and property are not common, their frequency, as elsewhere, usually varying with the state of the season. In the Agency tract, however, grave crimes are of frequent occurrence, owing to the wild character of the country and the people. Murder, dacoity, and cattle theft are common;

and altogether this is one of the most criminal tracts in the Presidency.

Land revenue administration.

The revenue system in force before the Circārs (*Sarkārs*) were ceded to the Company (1765) consisted simply in the Faujdār or Nawāb farming or leasing out the greater part of the country to revenue agents, who received a percentage of what they collected. In accordance with Oriental custom, these revenue posts tended to become hereditary, and before the cession their holders were usually called *zamīndārs* and the local area of the jurisdiction of each was known as his *zamīndāri*. At the same time the Nawābs appropriated for their own use and for the support of the Musalmān garrisons certain lands called *haveli*, usually situated near the large towns, which were always under their own immediate management. After the cession this distinction between *zamīndāri* and *haveli* or Government land was retained for some time, but it was abolished on the introduction of the permanent settlement in 1802. The District then contained sixteen ancient *zamīndāris*. These were permanently settled for an annual *peshkash* of 8 lakhs. The *haveli* lands were parcelled out into convenient areas and sold by auction, and thus also brought under the *zamīndāri* system. In this way twenty-three new estates were formed, with a *peshkash* of nearly 4 lakhs. These and the sixteen ancient *zamīndāris* formed the new Collectorate of Vizagapatam.

The District as thus created was entirely *zamīndāri*; but between 1833 and 1844 twelve estates were confiscated for rebellion or resumed on other accounts, and constituted into the three *ryotwāri tāluks* of Golgonda, Sarvasiddhi, and Pālkonda. The last named, however, was leased to Messrs. Arbuthnot & Co. in 1846 and not resumed by Government till 1892.

The ancient system of land assessment was by division of the produce, but in the Government estates as well as in many *zamīndāris* this was often effected through the medium of a renter. The *zamīndārs* imposed a fixed assessment on 'dry' (unirrigated) land which amounted to half the gross produce, but on 'wet' (irrigated) land the imposition of additional taxes reduced the share of the ryot in theory to one-third, but in practice to only one-fifth, of the produce.

The existing survey of the three Government *tāluks* was carried out in 1884–8 and their settlement in 1888–9, the new rates of assessment being introduced in 1899–1900. The survey showed that the area under cultivation had been

understated in the old accounts by about 20 per cent., and the settlement resulted in an increase of 15 per cent. in the land revenue. The average assessment on 'dry' land is now Rs. 1-1-0 (maximum, Rs. 3; minimum, 6 annas) and on 'wet' land Rs. 5-9-5 (maximum, Rs. 8; minimum, Rs. 2) per acre.

The revenue from land and the total revenue in recent years are given below, in thousands of rupees:—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue .	18,77	16,99	19,14	18,67
Total revenue .	20,75	24,66	31,40	31,49

Local boards.

The greater part of the Agency tract has recently been brought under the Local Boards Act. In the ordinary tracts four municipalities (Vizagapatam, Vizianagram, Bimlipatam, and Anakāpalle) have been constituted. Outside these towns, local affairs are managed by the two District boards of Vizagapatam and Koraput, and by the four *tāluk* boards of Vizagapatam, Vizianagram, Narasapatnam, and Pārvatīpuram, the local areas of the jurisdiction of the latter being conterminous with the revenue subdivisions of the same names. The total expenditure of these boards in 1903-4 was more than 4 lakhs, nearly 2½ lakhs being laid out on roads and buildings, while education, hospitals, and sanitation accounted for another lakh. The chief source of income is the land cess. Subordinate to the *tāluk* boards are fifteen Union *panchāyats*, which manage the affairs of the smaller towns, levying a small tax on houses and spending the proceeds on sanitary needs.

Police and jails.

For police purposes the District is divided into two areas, Vizagapatam and Jeypore. The latter comprises the Koraput subdivision and the former the rest of the District. These two together contain 107 police stations; and the force within them consists of 24 inspectors, one European constable, 169 head constables, and 1,275 constables. Reserve police, consisting of picked men better armed than the rest, are stationed in four places, and are intended mainly to be available in case of disturbances in the Agency tract. The rural police in the Government *tāluks* number 250.

The District jail at Vizagapatam has accommodation for 357 prisoners, and 22 sub-jails at the various *tāluk* and *tahsīl* head-quarters (except Vizagapatam) are capable of holding altogether 427 prisoners.

Education.

A large portion of the population consists of wild hill tribes;

and hence it is not surprising to find that, according to the Census of 1901, the District takes the last place in the Presidency in point of education, only 3·2 per cent. of the population (6·1 males and 0·4 females) being able to read and write. Considerable progress, however, has been made during the last two decades. The total number of pupils under instruction in the District in 1880–1 was 14,973; in 1890–1, 24,142; in 1900–1, 31,980; and in 1903–4, 36,025. The enormous majority of these were in primary classes.

At the close of 1903–4 there were in the District 1,167 educational institutions of all sorts, of which all but 104 were public institutions. These included 1,020 primary, 31 secondary, and ten training and special schools, and also the two Arts colleges at Vizagapatam and Vizianagram. The girls in them numbered altogether 5,019.

Of the public schools, 69 were directly managed by the Educational department, 119 by local boards, and 17 by municipal councils. Those aided by grants from Government numbered 633, while 225 were unaided. There were in addition 30 special primary schools for Panchamas (depressed and backward castes), with 1,027 pupils. Only about 12 per cent. of the male population of school-going age were in the primary stage of instruction, and 2 per cent. of the female population of the same age. Among the Musalmāns the corresponding percentages were high (61 and 25), but the followers of this faith in the District are few in number. The total expenditure on education in 1903–4 was Rs. 2,77,000, of which Rs. 88,000 was derived from fees. Of the total, Rs. 1,42,000 was devoted to primary education.

Hospitals and dispensaries.

The District contains 21 hospitals and 6 dispensaries, as well as 2 hospitals for 'caste' women, 4 police hospitals, and a lunatic asylum at Vizagapatam. The hospitals have accommodation for 299 in-patients. In 1903 the number of cases treated was 363,625, including 2,838 in-patients, and 7,132 operations were performed. The expenditure was Rs. 62,000, mostly met from Local and municipal funds.

Vaccination.

The progress of vaccination in recent years has been slow, the number of successful vaccinations in 1900–1 being only 21 per 1,000 of the population. In the succeeding years the figure rose to 27, but it is still below the average for the Presidency. Vaccination is compulsory only in the four municipal towns.

[Further particulars of the District will be found in the *District Manual*, by D. F. Carmichael, 1869.]

Koraput Subdivision.—Subdivision of Vizagapatam District, Madras, consisting of the *zamīndāri tahsīls* of KORAPUT, NOWRANGAPUR, JEYPORE, POTTANGI, MALKANGIRI, and PADWA, which are all in the Agency tract.

Koraput Tahsīl.—Agency *tahsīl* in Vizagapatam District, Madras, lying above the Ghāts, with an area of 671 square miles. The population in 1901 was 73,818 (chiefly hill tribes), compared with 74,476 in 1891. They live in 611 villages. The head-quarters of the *tahsīl* are at Koraput village. The country is hilly but extensively cultivated, most of the forest having been destroyed. It belongs to the Rājā of the Jeypore estate.

Nowrangapur.—Northernmost *tahsīl* in the Agency tract of Vizagapatam District, Madras, stretching up into the Central Provinces and Bengal, between the States of Bastar and Kālāhandī. It is open, and is watered by the tributaries of the Tel and Indrāvati rivers. Much fine forest still exists and the valleys are highly cultivated. The area is 2,172 square miles, and the population in 1901 was 104,145 (chiefly Khonds and other hill-tribes), compared with 116,399 in 1891. They live in 1,031 villages. The head-quarters of the *tahsīl* are at Nowrangapur village, where the Rānī of Nowrangapur, a connexion of the Jeypore family, resides. Considerable traffic passes through this *tahsīl* between Jeypore and the neighbouring States of the Central Provinces and Bengal.

Jeypore Tahsīl.—Agency *tahsīl* in Vizagapatam District, Madras, lying above the Ghāts, with an area of 1,016 square miles. The population in 1901 was 133,831, compared with 140,580 in 1891. They live in 1,213 villages. The chief town is Jeypore (population, 6,689), the residence of the Rājā of the JEYPORE ESTATE, and a centre of trade between the Central Provinces and the low country of the District. The demand for land revenue and cesses for the whole estate in 1903–4 was Rs. 26,000. The *tahsīl* is all *zamīndāri* land and is for the most part open and well cultivated, the Kolab river passing through the centre of it.

Jeypore Estate.—An estate occupying the whole of the northern part of Vizagapatam District, Madras. It embraces practically all the Agency or hill tracts therein, and consists of the *tahsīls* of Nowrangapur, Jeypore, Koraput, Malkangiri, Bissamcuttack, and Rāyagada, and the major portion of Padwa, Pottangi, and Gunupur. The residence of the Rājā is at Jeypore town.

The *zamīndāri* is divided into two portions, east and west;

by the Kālāhandī State in Bengal. The western portion forms the Government subdivision of which the head-quarters are at Koraput, while the eastern is under the jurisdiction of the Special Assistant-Agent at Pārvatīpuram. Each portion has a separate river system, the western being drained by tributaries of the Godāvari, and the eastern by the Nāgāvali (or Lāngulya) and Vamsadhāra rivers and their affluents.

Various forms of under-tenure prevail within the estate. The proprietor of the subsidiary estate of Bissamcuttack holds his land on feudatory tenure; whole villages are leased out for a nominal rent to *mustājirs* or *muttahdārs*, who have in many cases the right to sell portions or the whole of their village without the sanction of the Rājā; while a large portion of the estate is leased out on *jerāyati* tenure direct to the cultivators.

Ethnologically we find that the aboriginal tribes have been overlaid by immigration. The Khonds and Savaras, who inhabit the wild tracts adjoining the Ganjām MĀLIAHS (*hills*), retain their separate tribal characteristics and languages, but in other parts the customs and practices of the new-comers have, in many cases, been adopted. In Kotapad and Singapur, for instance, the earlier peoples have adopted the practice of burning their dead. On the other hand, the Meriah human sacrifice (see MĀLIAHS), held to be a purely Khond rite, spread among the immigrants and obtained so firm a hold that it had to be suppressed by force, a special agency being employed for that purpose until as late as 1861.

The ancestors of the present house of Jeypore were at one time retainers of the Gajapati kings of Orissa. In the fifteenth century its founder, Vināyaka Deo, whom tradition asserts to be descended from the Lunar race of Rājputs, married a daughter of the Gajapati king, who bestowed upon him the Jeypore principality. About the year 1652, when the founder of the VIZIANAGRAM family came to CHICACOLE in the train of the Golconda Faujdār, Sher Muhammad Khān, the present Jeypore family, descended from Vināyaka Deo, was in possession not only of the country comprised within the present limits of the estate, but of all the hill *zamīndāris* at the base of the Ghāts. Jeypore subsequently became tributary to Vizianagram; but in 1794 the Madras Government granted the Jeypore ruler a separate *sanad* as a reward for his loyalty during their conflict with Vizianagram which ended with the battle of Padmanābham.

In 1803 the *peshkash* of the estate was fixed at Rs. 16,000. In addition it pays Rs. 13,666 for the *pargana* of Kotapad, in

lieu of the tax originally paid thereon to the State of Bastar in the Central Provinces.

In 1848, owing to the insubordination of some members of the Rājā's family, some of the *tahsīls* of the estate were attached by Government. In 1855 troubles again broke out, and finally, in 1860, the Government was compelled to introduce a system of civil and criminal administration. A Special Assistant-Agent was appointed, and subordinate magistrates and a strong police force were posted in the *zamīndāri*. Since then the estate has been free from disturbances, save for two unimportant outbreaks among the Savaras in 1865–6.

The present Rājā is Srī Vikrama Deo, on whom the title of Mahārājā was conferred as a special distinction in January, 1896. Under the existing system of administration continual progress is assured; and the recently constituted Forest department is opening out the immense timber resources of the estate, which includes the finest forest in Vizagapatam District.

Pottangi.—*Zamīndāri tahsīl* in the Agency tract of Vizagapatam District, Madras. It is situated on both slopes of the EASTERN GHĀTS, and so is hilly in character and still for the most part covered with jungle, though a great quantity of this has been destroyed. The main road to the Jeypore estate from the low country passes through it. Area, 625 square miles; population (1901), 73,013 (chiefly hill tribes), compared with 77,641 in 1891; number of villages, 920. The head-quarters are at Pottangi. The *tahsīl* is entirely *zamīndāri* land, belonging to the Jeypore and Pāchipenta estates.

Malkangiri.—Agency *tahsīl* in Vizagapatam District, Madras, situated north of the Ghāts on the western frontier of the District, and bounded east and west by the Machkund and Sābari rivers. Area, 2,396 square miles; population (1901), 35,856, compared with 28,277 in 1891; number of villages, 566. The *tahsīl* is the largest and most sparsely peopled in the Presidency, the density of population being only 15 persons per square mile. Malkangiri is a wild forest-clad area, watered by the Sābari and Sileru, and sloping down to the Godāvari frontier. Good teak and *sāl* (*Shorea robusta*) forests exist, and they are being 'reserved' by the Rājā of Jeypore, to whom the *tahsīl* belongs. The head-quarters are at Malkangiri village. Among the inhabitants, besides hill tribes, are found a considerable number of Telugus who have immigrated from the neighbouring Agency tract of Godāvari.

Padwa.—*Tahsīl* in the Agency tract of Vizagapatam

District, Madras. It is situated on the northern slope of the EASTERN GHĀTS, and consists of a plateau with an average elevation of 3,000 feet, traversed by several hill ranges which attain heights considerably greater, Arma (5,500 feet) and Sinkram (5,300 feet) being the highest peaks in the range. The upper slopes of the hills are as a rule open and covered with high bison grass, which is annually burnt by the hill tribes. The area of the *tahsīl* is 1,383 square miles, with a population in 1901 of 64,415, compared with 58,995 in 1891, chiefly hill tribes with a considerable admixture of Telugus. They live in 1,418 villages. The head-quarters are at Padwa village. The *tahsīl* belongs almost equally to the Mādugula, Jeypore, and Pāchipenta *zamīndārs*. Among the places of interest in it may be mentioned the great limestone cave at Borra, which contains a Saivite shrine and from which a stream emerges and runs down a gorge of remarkable beauty 300 feet deep; and Paderu, the former head-quarters of the *tahsīl* and the original home of the Mādugula *zamīndārs*.

Pārvatīpuram Subdivision.—Subdivision of Vizagapatam District, Madras, consisting of the *zamīndāri tahsīls* of PĀRVATĪPURAM (including Agency area), BISSAMCUTTACK, RĀYAGADA, GUNUPUR, BOBBILI, and SĀLŪR (including Agency area).

Pārvatīpuram Tahsīl.—*Zamīndāri tahsīl* in Vizagapatam District, Madras, lying between 18° 38′ and 19° 8′ N. and 83° 17′ and 83° 50′ E., in the north of the extensive plain drained by the Nāgāvali or Lāngulya river, with an area of 799 square miles. Population (1901), 160,523, compared with 157,014 in 1891. The head-quarters are at PĀRVATĪPURAM town (population, 17,308); the number of villages is 498. The northern part of the *tahsīl* is hilly and lies within the Agency limits; the rest is flat and presents no features of interest. The *tahsīl* is all *zamīndāri* land, belonging partly to the Belgām and Pārvatīpuram estates and partly to the *zamīndārs* of Kurupām, Sangamvalsa, and Merangi. The demand for land revenue and cesses in 1903–4 was Rs. 77,500.

Bissamcuttack.—*Tāhsīl* in Vizagapatam District, Madras, situated entirely within the Agency tract and comprising the upper basins of the Nāgāvali (or Lāngulya) and Vamsadhāra rivers. It may be described as generally hilly, though the Nāgāvali valley which runs through it is one of the great channels of communication between the Central Provinces and the sea. The proposed railway from Raipur to Vizianagram will follow this route. The hills are as a rule barren; but the valleys are well cultivated, grain, tobacco, saffron, and mustard

being the chief exports. The land tenure is *zamīndāri*, the *zamīndār* being a feudatory of the Rājā of Jeypore. The area of the *tahsīl* is about 1,200 square miles, and it contains a population (1901) of 59,445, living in 837 villages. The people are for the most part Khonds, though many Telugus reside in the valleys. The head-quarters are at Bissamcuttack village (population, 2,026).

Rāyagada.—*Tahsīl* in the Agency tracts of Vizagapatam, Madras, lying in the north-east of the District. It is very hilly, but the hills have for the most part been denuded of their forest. The Nāgāvali or Lāngulya river traverses the whole length of it, and most of the cultivation (chiefly rice) is in this valley. The area is 710 square miles; and the population in 1901 was 86,610 persons, chiefly Khonds and other hill tribes, living in 758 villages. The head-quarters are at Rāyagada.

Gunupur.—Agency *tahsīl* in Vizagapatām District, Madras, lying on the Ganjām border, with an area of about 600 square miles. The population in 1901 was 113,682, compared with 113,822 in 1891, consisting of Khonds and Savaras, with a sprinkling of Oriyā Brāhmans and a considerable number of Telugus. The number of villages is 1,149, and the head-quarters are at Gunupur. The *tahsīl* lies entirely in the valley of the Vamsadhāra river, and is extensively cultivated with rice and 'dry' grain. The greater part of it is included in the Jeypore estate, but some belongs to the *zamīndār* of Kurupām.

Bobbili Tahsīl.—*Tahsīl* in the east of Vizagapatam District, Madras, lying between 18° 26′ and 18° 44′ N. and 83° 14′ and 83° 33′ E., with an area of 268 square miles. The population in 1901 was 133,577, compared with 128,785 in 1891. The *tahsīl* contains one town, BOBBILI (population, 17,387), the head-quarters; and 167 villages. It is entirely *zamīndāri*, and belongs to the Rājā of Bobbili. It is very flat and is under extensive cultivation. The demand for land revenue and cesses in 1903–4 was Rs. 1,34,000.

Bobbili Estate.—*Zamīndāri* estate in Vizagapatam District, Madras, the head-quarters of which are at the town of the same name. It lies along the foot of the EASTERN GHĀTS, extending eastwards across the plain irrigated by the Nāgāvali river, and comprises the whole of the Bobbili *tahsīl* and parts of the adjoining Pālkonda *tāluk* and Sālūr *tahsīl*. The country is flat and extensively cultivated, and the estate has prospered exceedingly under the management of the present Rājā and his predecessors.

Bobbili is one of the most ancient *zamīndāris* in the Presidency and possesses an interesting history. When, in 1652, Sher Muhammad Khān, the Nawāb of Chicacole, entered the District, there followed in his train two rivals, Peddarāyudu, the ancestor of the present chief of Bobbili, and the ancestor of the VIZIANAGRAM family; and from this time dates the rivalry between the two houses. Peddarāyudu soon after received an estate in reward for gallantry, and on this he built a fort, naming it Bobbili ('the royal tiger') in honour of his patron's designation *Sher* ('tiger'). This estate bordered on Vizianagram, and there was constant friction between the two chiefs. In 1756 the turbulence of the local chieftains called for measures of repression, and the French general Bussy marched with a European force to restore order. On his reaching Vizianagram, the Rājā assured him that the chief of Bobbili was the instigator of all the disturbances, and to testify his own loyalty joined the French with a force of 11,000 men to assist in crushing his rival. Before attacking Bobbili, Bussy offered the chief a pardon for the past and lands of equal value elsewhere if he would abandon his ancestral estate; but the offer was refused.

The attack on the fort at Bobbili which followed is one of the most memorable in Indian history. At daybreak the fieldpieces began to play on the mud defences, practicable breaches were at once made, and the assault sounded. After four hours' fierce hand-to-hand fighting, Bussy called off his men to allow the cannon to widen the breaches. A second assault was then ordered, but with no better results, for not a man had gained a footing within the ramparts when, five hours later, Bussy again withdrew the storming party to repeat the argument of artillery. The defenders now recognized their desperate position, and collecting their wives and families put them to death and returned to their posts. The assault soon recommenced; and when at sunset Bussy entered the fort as victor with the remnant of his army, it was only because every man in the garrison was dead or mortally wounded. An old man, however, crept out of a hut and leading a child to Bussy presented him as the son of the dead chief. Three nights later, when the Vizianagram camp was buried in sleep, four followers of Bobbili crept into the Rājā's tent, and before the sentries had discovered and shot down the assassins they had stabbed the Rājā to death, inflicting thirty-two wounds on his body.

The child saved from the slaughter, Chinna Ranga Rao,

was invested by Bussy with the chiefship of the lands that had been offered to his father; but before he attained his majority his uncle regained by force of arms his former estate. Eventually the Vizianagram family came to terms with their rivals, and leased certain areas to them. The old feud, however, subsequently broke out again and the Bobbili chief fled into the Nizām's country. But in 1794, when the Vizianagram estate was dismembered, Chinna Ranga Rao was restored by the British to his father's domains, and in 1801 a permanent settlement was concluded with his son for an annual tribute of Rs. 90,000.

Since then, under a series of able *zamīndārs*, things have gone well with the estate. Its income exceeds 5 lakhs, and the *peshkash* payable to Government is Rs. 83,652. The present *zamīndār*, Mahārājā Sir Venkataswetāchalapati Ranga Rao, K.C.I.E., the adopted great-grandson of the holder of the permanent settlement, is one of the foremost noblemen of the Madras Presidency. In 1895 he was invested with a knighthood of the Order of the Indian Empire, and in 1900 the title of Mahārājā was conferred upon him as a personal distinction, the title of Rāja having already been recognized as hereditary in the family. He has also been a member of the Madras Legislative Council, and has visited England.

Sālūr Tahsīl.—*Tahsīl* in Vizagapatam District, Madras, lying between 18° 19′ and 18° 46′ N. and 83° 3′ and 83° 22′ E., at the foot of the EASTERN GHĀTS and traversed by the road from Vizianagram to Jeypore. It lies partly within the Agency tract, the area of the ordinary portion being 180, and of the Agency part 200 square miles; total, 380 square miles. The population in 1901 was 97,843, compared with 88,836 in 1891. The *tahsīl* contains one town, SĀLŪR (population, 16,239), the head-quarters, and 199 villages. The Agency population consists chiefly of Khonds and other hill tribes. The demand for land revenue and cesses in 1903–4 was Rs. 48,500.

Vizianagram Subdivision.—Subdivision of the Vizagapatam District, Madras, consisting of the *zamīndāri tahsīls* of VIZIANAGRAM, CHĪPURUPALLE, GAJAPATINAGARAM, and BIMLIPATAM, and the *tāluk* of PĀLKONDA (including Agency area).

Vizianagram Tahsīl.—One of the plains *tahsīls* of Vizagapatam District, Madras, lying between 17° 59′ and 18° 16′ N. and 83° 17′ and 83° 36′ E., and consisting for the most part of the flat country surrounding its head-quarters, VIZIANAGRAM town (population, 37,270). It is traversed by the East Coast

Railway. The area is 294 square miles; population (1901), 185,670, compared with 166,658 in 1891; number of villages, 191. The demand for land revenue and cesses in 1903-4 amounted to Rs. 5,95,000.

Vizianagram Estate.—One of the most important estates in the Madras Presidency, occupying the greater part of the lowland area of the District of Vizagapatam. It comprises the whole of the Vizianagram, Bimlipatam, and Srungavarappukota *tahsīls*, and portions of Pālkonda, Gajapatinagaram, Chīpurupalle, Vizagapatam, Anakāpalle, Vīravilli, Golgonda, and Sarvasiddhi, and thus includes the most thickly populated and fertile parts of the District. The capital is at the town of the same name. It yields an income of about 20 lakhs per annum, and paid in 1903-4 *peshkash* and cesses amounting to Rs. 5,79,000.

The family claims descent from Mādhavavarma, who led a Rājput colony into the Kistna Valley in A.D. 591, and whose descendants held important posts at the court of Golconda. In 1652, one of these, Pūsapāti Mādhavavarma, entered Vizagapatam, where he and his successors down to the celebrated Viziarāma Rāz, the friend of Bussy, gradually added one tract of country to another, till they became the most powerful family in the Northern Circars. Pedda Viziarāma Rāz, so called to distinguish him from his ill-fated grandson, who fell at Padmanābham in 1794, succeeded his father about 1710. In 1712 he removed his capital from Potnūr to Vizianagram, which he called after his own name. For several years he occupied himself in building a fort there, and in gradually extending his dominions. In 1754 he formed an alliance with Jafar Alī Khān, the Faujdār of Chicacole, but deserted him for the more profitable friendship of the French under Bussy, by whose assistance he was enabled in 1757 to compass the death of his hereditary enemy, the *zamīndār* of Bobbili, and to seize his capital. His triumph was, however, short-lived; for three nights after the storming of that fort, Viziarāma Rāz was assassinated in his tent by four followers of his old foe.

His successor Ananda Rāz, smarting under some slight, reversed the policy of his father, and marching on Vizagapatam, at that time in the hands of a French garrison, captured it and made it over to the English (1758). On the arrival of Colonel Forde's column from Bengal to attack the French, Ananda Rāz accompanied it on its victorious march on Rājahmundry and Masulipatam. On the return journey he died,

and was succeeded by a minor adopted son, Viziarāma Rāz, who for many years was entirely in the hands of his half-brother, Sītā Rām Rāz, a clever, unscrupulous, and grasping character. In 1761 Sītā Rām attacked Parlākimedi, defeating the forces of its chief, with their Marāthā allies, near Chicacole and thereby acquiring a considerable accession of territory. The war was carried southward into Rājahmundry with similar results. By this time, besides the large estate of Vizianagram governed directly by the Pūsapātis, Jeypore, Pālkonda, and fifteen other large *zamīndāris* acknowledged the Rājā as suzerain.

Sītā Rām proved himself a successful ruler, paying his *peshkash* of 3 lakhs to the Company with punctuality, and making capital of his loyalty so as to procure, among other advantages, the assistance of British troops for the suppression of his turbulent hill feudatories. By these means the Pūsapātis attained yet further power and prestige. The absolute authority which Sītā Rām acquired was irksome to his brother, the Rājā, and was found intolerable by many chiefs, who petitioned persistently for his removal in favour of another Dīwān, Jagannāth Rāz. But Sītā Rām was possessed of too much influence, both in the Circārs and at Madras itself, to be easily ousted. The Court of Directors in England ordered his dismissal in vain; and it was not till after several accusations of corruption had been brought, and the resultant quarrels had necessitated the removal of the Governor of Madras (Sir T. Rumbold) and two members of Council, that Sītā Rām's star began to set.

In 1784 the Circuit Committee, in reporting on the District, brought to notice that Vizianagram with his feudatories maintained a standing army of 12,000 men, which was reasonably held to be a source of danger to the Company. The only immediate result of this report was the temporary retirement of Sītā Rām. In 1790 he returned for a while; but in 1793 he was summoned to live at Madras, and from that time forth disappears from local history. Viziarāma Rāz proved incapable of the task of governing. He fell into heavy arrears with his *peshkash*, and the Government ordered his estate to be sequestrated, and directed him to reside at Masulipatam on a fixed allowance. He set out from his capital accordingly, but halted almost immediately, and being joined by a large force of friends and followers refused either to proceed or to treat with the authorities. On July 10, 1794, Colonel Prendergast accordingly attacked him at Padmanābham, and completely routed his army after three-quarters of an hour's fighting. The

Rājā himself and many of his principal chiefs were among the slain.

The death of Viziarāma Rāz marks a turning-point in the fortunes of the family. Up to that time, except for occasional vicissitudes, the importance of the Pūsapātis had steadily increased during the century, until their own dominions and those of their feudatories covered an area conterminous with the present District of Vizagapatam. Their progress was now checked.

After the battle of Padmanābham, Nārāyana Bābu, the minor son of the deceased Viziarāma Rāz, fled to the protection of the hill *zamīndārs*, who were disposed to raise the standard of revolt in his favour, but were prevented from doing so by timely measures. After protracted negotiations, the Rājā surrendered and a fresh title-deed was given him. Under its terms the hill chiefs were removed from his control and brought into direct relations with the Government, and some parts of Vizianagram were absorbed into the *haveli*, or Government, lands. A *peshkash* of 6 lakhs was imposed on the reduced Vizianagram *zamīndāri*. In 1802 the permanent settlement was made. The *zamīndāri* then contained 24 *parganas* and 1,157 villages, and the *peshkash* was fixed at 5 lakhs. Nārāyana Bābu died at Benares in 1845, heavily in debt, having left his estates in the charge of Government for about half the period of his rule. His successor, Viziarāma Gajapati Rāz, continued this arrangement for seven years, but in 1852 he took over the management himself. The estate was then in a most flourishing condition, and had a credit balance of more than 2 lakhs. Viziarāma Rāz and his son and successor Ananda Rāz proved themselves worthy of their position. Both were members of the Viceroy's Council and received high honours from the Crown, Viziarāma Rāz being made a Mahārājā and a K.C.S.I. and Ananda Rāz a Mahārājā and a G.C.I.E. The latter died in 1897, and the heir (Rājā Pūsapāti Viziarāma Gajapati Rāz) being a minor, the estate was placed in charge of a collector and guardian appointed by Government under the Guardians and Wards Act. The minority expired in August, 1904.

The estate is now being surveyed and a settlement will shortly be made. A Forest staff has recently been organized, to protect the still existing growth and to reafforest the many bare ranges of hills in the estate.

Pālkonda Tāluk.—*Tāluk* in Vizagapatam District, Madras, lying between 18° 22′ and 18° 47′ N. and 83° 31′ and 83° 56′ E.,

on the extreme eastern boundary of the District, part of it falling within the Agency limits. Its total area is 502 square miles. The ordinary tracts are thickly peopled, and cultivated with rice, indigo, pulses, and grain crops, irrigated from the Nāgāvali river. The Agency portion is hilly and forest-clad, and contains about 56 square miles of 'reserved' forest. The population of the ordinary tracts in 1901 was 215,376, compared with 201,331 in 1891, living in two towns, PĀLKONDA (population, 10,615), the *tāluk* head-quarters, and RAZAM (5,096); and 334 villages. In the Agency tract the population in 1901 was 11,245 persons (chiefly Savaras), compared with 11,824 in 1891, living in 106 villages. The greater part of the *tāluk* is held on *ryotwāri* tenure, but large areas belong to the Rājās of BOBBILI and VIZIANAGRAM. A considerable proportion of the *ryotwāri* land is irrigated, chiefly from tanks. The demand for land revenue and cesses in 1903–4 was Rs. 3,04,000.

When the NORTHERN CIRCĀRS were ceded to the British in 1765, the *tāluk* was a *zamīndāri*, feudatory to the Rājā of Vizianagram. From 1796 onwards there were constant disputes and attempted disturbances, and finally in 1832 the *zamīndār* of Pālkonda broke into open rebellion. This was put down with the aid of troops, and the *zamīndāri* was then declared forfeit to Government and the male members of the family were imprisoned. From 1833 to 1846 the estate was managed by the Collector, as also (from 1811) was the neighbouring estate of Honjaram, which had been purchased by Government for arrears of revenue. In 1846 an arrangement was made with a European firm at Madras, whereby the two estates of Pālkonda and Honjaram were leased to them for Rs. 1,31,000. This arrangement lasted till 1892, when Government resumed direct management, the two estates being amalgamated to form the *ryotwāri* portion of the *tāluk*.

Chīpurupalle.—Northernmost coast *tahsīl* of Vizagapatam District, Madras, lying between 18° 2′ and 18° 32′ N. and 83° 26′ and 83° 57′ E., with an area of 549 square miles. The population in 1901 was 170,532, compared with 156,570 in 1891. The *tahsīl* contains 268 villages, the head-quarters being at Chīpurupalle. The demand for land revenue and cesses in 1903–4 was Rs. 49,000. The *tahsīl* is flat, and a large part of it is covered with low scrub jungle.

Gajapatinagaram.—*Tahsīl* in Vizagapatam District, Madras, lying near the Ghāts, between 18° 11′ and 18° 30′ N. and 83° 3′ and 83° 32′ E., with an area of 333 square miles. The population in 1901 was 134,553, compared with 124,057 in 1891.

The *tahsīl* contains 228 villages, the head-quarters being at the village of the same name. The demand for land revenue and cesses in 1903–4 was Rs. 14,600.

Bimlipatam Tahsīl.—Coast *tahsīl* in Vizagapatam District, Madras, lying between 17° 50′ and 18° 6′ N. and 83° 12′ and 83° 37′ E., with an area of 207 square miles. The population in 1901 was 126,354, compared with 114,834 in 1891. The *tahsīl* contains one town, BIMLIPATAM (population, 10,212), the head-quarters, and 117 villages. The demand for land revenue and cesses in 1903–4 was Rs. 8,805. This is a densely populated *tahsīl*, which is entirely *zamīndāri* land belonging to the VIZIANAGRAM ESTATE.

Vizagapatam Subdivision.—Subdivision of the Vizagapatam District, Madras, consisting of the *zamīndāri tahsīls* of VIZAGAPATAM and SRUNGAVARAPPUKOTA (including Agency area).

Vizagapatam Tahsīl.—Coast *tahsīl* in Vizagapatam District, Madras, lying between 17° 38′ and 17° 51′ N. and 83° 11′ and 83° 25′ E., with an area of 173 square miles. The population in 1901 was 110,652, compared with 97,776 in 1891. The *tahsīl* contains one town, VIZAGAPATAM (population, 40,892), the head-quarters of the *tahsīl* and the District; and 76 villages. The demand for land revenue and cesses in 1903–4 was Rs. 16,900. A great part of the *tahsīl* is covered by small ranges of bare rocky hills running up to 1,800 feet. On one of these ranges, to the north of Vizagapatam town, called Kailāsa, an attempt was once made to establish a sanitarium.

Srungavarappukota Tahsīl. — *Tahsīl* in Vizagapatam District, Madras, lying between 17° 54′ and 18° 17′ N. and 82° 55′ and 83° 20′ E., partly on and partly below the Eastern Ghāts, with a total area of 438 square miles. The hill country in it is included in the Agency tract. The population in the ordinary portion is 137,724 and in the Agency tract 4,293, making a total of 142,017 (1901), compared with 133,343 in 1891. The *tahsīl* contains one town, SRUNGAVARAPPUKOTA (population, 5,862), the head-quarters, and 266 villages. The demand for land revenue and cesses in 1903–4 was Rs. 17,200. The ordinary portion presents no features of interest. The small portion in the Agency tract is very hilly, rising to a height of 5,200 feet in Gālikonda ('windy hill'). At Anantagiri (about 2,800 feet) is a coffee plantation managed by the VIZIANAGRAM ESTATE, and a bungalow. The hills are as a rule well wooded, the lower slopes being 'reserved' by the Vizianagram estate, but the higher ranges are usually open rolling savannahs covered

with long bison grass. Between Gālikonda and Anantagiri lies Harris Valley, the scene of an attempt made about fifty years ago to establish a sanitarium for the troops stationed in the District, which was rendered a failure by malarial fever, as the site of the camp was badly chosen. Had the men been stationed 1,000 feet higher up the hill the experiment might have proved successful.

Narasapatnam Subdivision.—Subdivision of Vizagapatam District, Madras, consisting of the *tāluk* of GOLGONDA (including Agency area), the *zamīndāri tahsīls* of VĪRAVILLI (including Agency area) and ANAKĀPALLE, and the *tāluk* of SARVASIDDHI.

Golgonda.—*Tāluk* in the south-west of Vizagapatam District, Madras, lying between 17° 22′ and 18° 4′ N. and 82° and 82° 50′ E., with an area of 1,263 square miles (of which 738 square miles are in the Agency tract). The population in 1901 included 123,507 persons in the ordinary and 33,929 in the Agency tract: total, 157,436, compared with 147,841 in 1891. The head-quarters are at NARASAPATNAM (population, 10,589), and there are 517 villages. The demand for land revenue and cesses in 1903-4 was Rs. 2,02,000. The Agency part of the *tāluk* is exceedingly hilly and is situated on both slopes of the Ghāts, the drainage of the northern part passing into the Machkund river and thence to the Godāvari. The hills are, as a rule, covered with fine forests, and considerable areas of these (about 260 square miles) have been 'reserved,' forming the most important of the Government forests in the District. The *tāluk* was one of the sixteen ancient *zamīndāris* which existed in Vizagapatam at the time of the permanent settlement, the *zamīndār* being a relation and feudatory of the Jeypore Rājā; but disturbances arose caused by the incapacity of the *zamīndār*, and in 1837 the estate was sold at auction for arrears of revenue and bought in by Government. To it were added the Kottakota and Vemulapūdi estates, which had been similarly purchased by Government in 1833 and 1831, and this tract forms the *ryotwāri* portion of the *tāluk*; the southern part is still *zamīndāri*. In 1845-8, and again in 1857-8, extensive risings took place among the hill chiefs, but since 1858 no trouble has occurred. The eastern part of the plains portion of the *tāluk* is under continuous cultivation, irrigated from the Komaravolu Ava lying on the Vīravilli *tahsīl* boundary. From Kondasantha and Krishnadevipeta, *ghāt* roads run up into the hills, and along the latter there is considerable traffic in jungle produce, grain, and salt.

Vīravilli.—*Zamīndāri tahsīl* in Vizagapatam District, Madras, lying between 17° 36′ and 18° 5′ N. and 82° 36′ and 83° 5′ E., partly in the Agency tract and partly in the plains; the Agency portion is very hilly and a great part of it is clad with jungle. The Agency portion has an area of 131 square miles, containing 31 villages and a population of 7,590 (chiefly hill tribes); and the ordinary portion, 424 square miles, with a population of 209,228, living in 236 villages. The total population in 1901 was 216,818, compared with 203,537 in 1891. The head-quarters are at Chodavaram (population, 5,705). The demand for land revenue and cesses in 1903-4 amounted to Rs. 62,700. The largest village in the *tahsīl*, Mādugula (population, 8,952), is the residence of the *zamīndār*, whose estate comprises the whole of the Agency portion and the north of the ordinary portion. The rest belongs to the Vizianagram estate. Vīravilli is extensively cultivated, the Sāradā river, which flows through it, affording good irrigation.

Anakāpalle Tahsīl.—*Tahsīl* in the south-east of Vizagapatam District, Madras, lying between 17° 29′ and 17° 55′ N. and 82° 57′ and 83° 15′ E., with an area of 297 square miles. The population in 1901 was 165,478, compared with 152,157 in 1891. The head-quarters are at ANAKĀPALLE (population, 18,539), and there are 143 villages. The demand for land revenue and cesses in 1903–4 was Rs. 1,22,000. The northern part of the *tahsīl* is very fertile and well watered, and is extensively cultivated with rice, sugar-cane, and other valuable crops. The coast soils are sandy and relatively infertile. The *tahsīl* is entirely *zamīndāri*, being divided among the Gode family and the Kasimkota, Vizianagram, and Chīpurupalle estates. Kasimkota was formerly a *Faujdāri* of the Chicacole *Sarkār*, and later, from 1794 to 1802, was the head-quarters of one of the three Collectorates which in 1802 were formed into the present Vizagapatam District.

Sarvasiddhi.—Coast *tāluk* in the south of Vizagapatam District, Madras, lying between 17° 15′ and 17° 40′ N. and 82° 31′ and 83° 1′ E., with an area of 341 square miles. The population in 1901 was 160,761, compared with 154,966 in 1891; number of villages, 152. The head-quarters are at YELLAMANCHILI (population, 6,536), the only other place of interest being UPMĀKA. The demand for land revenue and cesses in 1903-4 amounted to Rs. 2,60,000. The greater part of the *tāluk* is *zamīndāri*, but it contains about 83,000 acres of *ryotwāri* land. Of this, 15,000 acres, chiefly small hills lying near the coast,

have been constituted forest Reserves; but as most of this had been stripped bare by charcoal-burners, firewood-gatherers, and goats before reservation, it will be some little time before the growth is of much value. The soils are fertile, chiefly red and black loams, and irrigation is available from the Varāha and Sāradā rivers and Kondakirla Ava. Historically, the *ryotwāri* portion of the *tāluk* consists of a number of petty estates purchased by Government between 1831 and 1844 for arrears of revenue or other causes. The *zamīndāri* portion belongs partly to the Vizianagram and Melupāka estates, and partly to the Gode family.

Anakāpalle Town.—Head-quarters of the *tahsīl* of the same name in Vizagapatam District, Madras, situated in 17° 42′ N. and 83° 2′ E., on the Sāradā river, about 20 miles west of Vizagapatam town in the midst of a fertile plain. It is a rising agricultural centre, with a large export trade in jaggery (coarse sugar) and grain. Population (1901), 18,539. The affairs of the town are managed by a municipal council established in 1878. The municipal revenue and expenditure during the ten years ending 1902–3 averaged Rs. 16,000. In 1903–4 they were Rs. 25,000 and 21,000 respectively. Most of the revenue is derived from taxes on houses and lands and from tolls. The usual officers are stationed at it, and it is also a favourite place of residence among Hindus. It is a station on the East Coast Railway, 484 miles distant from Madras.

Bimlipatam Town.—Head-quarters of the *tahsīl* of the same name in Vizagapatam District, Madras, situated in 17° 54′ N. and 83° 27′ E., on the coast about 18 miles north-east of Vizagapatam town. The population (1901), 10,812, has advanced but little in recent years. A factory was established here in the seventeenth century by the Dutch, but it plays no part in history. It was sacked by the Marāthā hordes of Jafar Alī in 1754, but otherwise remained in the peaceful possession of the Dutch till 1825, when it was ceded by treaty to the East India Company. Till 1846 Bimlipatam remained a mere fishing village, but in that year it began to attract European capital and enterprise. It now forms a regular place of call for coasting steamers, and ranks as one of the chief ports on the east coast. The maritime trade has, however, been affected by the completion of the railway between Madras and Calcutta. During the five years ending 1903–4 the value of the seaborne imports averaged 8 lakhs and of the exports 32 lakhs. The chief exports are gingelly and gingelly oil, hides and skins, seeds, jute, indigo, and myrabolams; the principal imports are cotton

twist and yarn, and piece-goods. Though an open roadstead, the port is fairly well protected by the Uppada and Sugarloaf headlands. The town is governed by a municipal council of twelve members, created in 1866. During the ten years ending 1902–3 the income and expenditure averaged Rs. 14,000. In 1903–4 the income was Rs. 17,000, derived chiefly from taxes on houses and land, tolls, and school fees. The usual *tahsīl* staff is stationed here; and in addition several European merchants and others connected with the trade of the town reside either here or at Chittivalsa (3 miles distant), where a jute and gunny-bag factory has been established.

Bobbili Town.—Head-quarters of the *tahsīl* of the same name in Vizagapatam District, Madras, situated in 18° 34′ N. and 83° 23′ E. The population, which is increasing rapidly, numbered 17,387 in 1901. It is the residence of the Rājā of Bobbili, who lives in a fortified enclosure. A short distance outside can be traced the position of the old fort, the heroic defence of which against the forces of Vizianagram and the French (see BOBBILI ESTATE) is still remembered. The Rājā maintains two hospitals in the town, one of them an institution for women in charge of a lady apothecary.

Dolphin's Nose.—A large headland and well-known landmark for ships, situated in 17° 41′ N. and 83° 19′ E., forming the southern arm of the Vizagapatam harbour in the *tahsīl* and District of that name. The flagstaff on the summit is about 1,500 feet above the sea. An old ruined battery stands on the hill, and there used to be a lighthouse also, but this was destroyed by the cyclone of 1876 and has not been replaced.

Koraput Village.—Village in the *tahsīl* of the same name in Vizagapatam District, Madras, situated in 18° 48′ N. and 82° 44′ E. It is the head-quarters of the Koraput subdivision, and the residence of the Special Assistant Agent and the Superintendent of police, Jeypore, as well as of several German missionaries. Population (1901), 1,560. There is a police reserve here, besides the usual head-quarters offices and buildings.

Narasapatnam Town.—Head-quarters of the Golgonda *tāluk* and of the Narasapatnam subdivision, Vizagapatam District, Madras, situated in 17° 40′ N. and 82° 37′ E., 8 miles from the foot of the hills in the midst of a fertile plain. Population (1901), 10,589. It is a centre of trade with the hills to the north.

Padmanābham.—Village in the Bimlipatam *tahsīl* of Vizagapatam District, Madras, situated in 17° 59′ N. and 83° 20′ E. The large temple here has much local celebrity; but Padma-

nābham is chiefly of interest as the scene of the battle between Viziarāma Rāz, Rājā of Vizianagram, and the Company's forces under Colonel Prendergast on July 10, 1794. Viziarāma Rāz was defeated and slain, and with him fell most of his retainers and the principal chiefs of the country, the Company's loss being only 13 killed and 61 wounded.

Pālkonda Town.—Head-quarters of the *tāluk* of the same name in Vizagapatam District, Madras, situated in 18° 36′ N. and 83° 46′ E., at the crossing of the roads passing from Pārvatīpuram to the coast, and from the low country, through the Sītampeta Pass, to Ganjām District, and thus a place of some local importance. The population, which is increasing slowly, numbered 10,615 in 1901.

Pārvatīpuram Town.—Head-quarters of the *tahsīl* and subdivision of the same name in Vizagapatam District, Madras, lying in 18° 47′ N. and 83° 26′ E. Population (1901), 17,308. An Assistant Superintendent of police and a police reserve are stationed here; and lying at the junction of roads from Bengal, Jeypore, Pālkonda, and Vizianagram, it is a rapidly growing centre of trade between the hills and the low country.

Razam.—Town in the Pālkonda *tāluk* of Vizagapatam District, Madras, situated in 18° 27′ N. and 83° 41′ E., about 14 miles from Pālkonda, in the middle of an open plain covered with scrub jungle. Population (1901), 5,096.

Sālūr Town.—Head-quarters of the *tahsīl* of the same name in Vizagapatam District, Madras, situated in 18° 31′ N. and 83° 13′ E., at the foot of the Ghāts on the road from the Jeypore estate to Vizianagram. Population (1901), 16,239.

Santapilly.—Village in the Bimlipatam *tahsīl* of Vizagapatam District, Madras, situated in 18° 4′ N. and 83° 37′ E. In 1847 a lighthouse was erected on the summit of a small hill here, to warn coasting vessels making for Bimlipatam off the Santapilly rocks, distant about 6½ miles, the lighthouse bearing south-east half east and being distant about 17½ miles north-east of Bimlipatam. The light is visible 14 miles seaward. There is a safe passage in clear weather between the rocks and the shore, the channel being 6 miles wide.

Simhāchalam.—Temple in Vizagapatam *tahsīl* and District, Madras, situated in 17° 46′ N. and 83° 15′ E., 6 miles north-west of Vizagapatam town. It is most picturesquely situated in a steep wooded glen, down which flows a stream broken by numerous cascades, about half-way up the northern flank of Kailāsa hill. At the foot of the hill lies the village of Adivivaram, from which a long series of flights of stone steps winds

up the glen to the temple. These steps are continued up to the top of the hill and down its other side. The temple, which is the most famous place of local pilgrimage in the Northern Circārs, is dedicated to the lion incarnation of Vishnu, and is believed to have been built by Lāngūla Gajapati of Orissa. Apart from its surroundings the shrine possesses no striking beauties, though there are some fine black stone carvings. An inscription dated 1516 records the visit of Krishna Deva Rāya, the greatest of the kings of Vijayanagar. The temple is now in the charge of the Rājā of Vizianagram, who has a bungalow and beautiful rose-garden at the foot of the hill.

Srungavarappukota Town.—Head-quarters of the *tahsīl* of the same name in Vizagapatam District, Mādras, situated in 18° 7′ N. and 83° 8′ E., at the foot of the Ghāts. Population (1901), 5,862.

Upmāka.—Village in the Sarvasiddhi *tāluk* of Vizagapatam District, Madras, situated in 17° 24′ N. and 82° 43′ E. A very ancient temple stands here which contains no image, only the conch and discus of Vishnu being figured on the stone within the shrine. The yearly marriage of the god attracts great numbers of pilgrims in March. At the Census of 1901 there were 5,536 persons in the village, but more than 3,000 of them were pilgrims.

Vizagapatam Town.—Head-quarters of the District of the same name, Madras, situated in 17° 42′ N. and 83° 18′ E., 484 miles by railway from Madras and 547 from Calcutta. It is a flourishing seaport, lying in the angle of the bay formed by the projection seawards of the prominent headland known as the DOLPHIN'S NOSE. A little farther north along the coast, pleasantly situated on a ridge of low hills facing the sea, is the suburb of Waltair, one of the most favourite stations in the Presidency, where most of the officials of the District reside. To the west of the town lies a large backwater through which a small stream meanders to the sea, and on the north and south this is bounded by two parallel ridges of low hills about 1,800 feet in height and 4 miles apart. The bay in the angle between the coast and the Dolphin's Nose forms the present anchorage; but if the proposed scheme for dredging this backwater and river and forming an inner harbour and docks within them is carried out, Vizagapatam will have the finest harbour along the Bay of Bengal, safe in all weathers, and enabling ocean-going ships to load and unload at the dockside.

The story of Vizagapatam dates from the establishment in the seventeenth century by the East India Company of one of the earliest factories on the east coast. But historically the town can boast of little interest, the only events of any importance that have occurred being the two occupations of the factory, in 1689 by Aurangzeb's forces, and in 1757 by the French under Bussy.

The population in 1901 was 40,892, occupying 7,741 houses. In 1891 it was only 34,487, and the marked increase is largely due to the opening of the East Coast Railway. The population includes 36,346 Hindus, 2,761 Muhammadans, and 1,749 Christians. The majority of them reside in Vizagapatam proper; but there are large European communities in the suburbs of Waltair and Waltair Station, the former composed chiefly of Government officials and the latter of railway employés.

The town was constituted a municipality in 1866. The municipal income and expenditure during the ten years ending 1902-3 averaged Rs. 86,000 and Rs. 1,04,000 respectively. In 1903-4 they were Rs. 93,600 and Rs. 89,500, the income consisting chiefly of the proceeds of taxes on houses and land, a contribution from Government, and the water rate. The water-works, which cost about 4½ lakhs, have been recently completed. A sewage farm has also been laid out in the last few years.

Besides being the head-quarters of the usual District staff, Vizagapatam, with Waltair, is the residence of the controlling officers in the Northern Circārs of several departments, among them a Deputy-Inspector-General of Police, Conservator of Forests, Superintending Engineer, Deputy-Commissioner of Salt, Abkāri, and Customs, Inspector of Schools, Inspectress of Girls' Schools, and a Superintendent of Telegraphs, as well as of the staffs of the Bengal-Nāgpur and Madras Railway Companies which respectively work the sections of the railway to the north and south of the town. The District jail has accommodation for 357 prisoners, who are mainly employed in weaving carpets, cloths, and blankets, and making ropes and mats of coco-nut fibre. During 1904 the manufacturing department of the jail yielded a profit of Rs. 3,100, the value of the out-turn being nearly Rs. 10,000. A company and some cadets of the East Coast Rifle Volunteers, 155 strong at the end of 1904, are stationed in the place. Ecclesiastically, the town is divided into two parishes, St. John's, Vizagapatam, and St. Paul's, Waltair, in charge of the Government Chaplain. It also contains the head-quarters of the mission of

St. Francis of Sales in Savoy (the head of which is the Roman Catholic Bishop of Vizagapatam), and of the London Missionary Society.

With the exception of the making of ornamental articles of ivory, tortoise-shell, and horn for Europeans, Vizagapatam has no indigenous arts of any interest. Nor, except for a distillery, has it any manufactures of note. It is chiefly important as a shipping centre, and is a port of call for all vessels engaged in the coasting trade, the annual value of the imports during the five years ending 1903-4 averaging 5 lakhs and of the exports 17 lakhs. The chief imports are cotton twist and yarn and piece-goods, iron, and timber; the principal exports are manganese ore, raw sugar, hides and skins, myrabolams, and indigo. A lighthouse has recently been erected opposite the anchorage.

The educational institutions of the town include, besides the usual lower-grade schools, a second-grade college (the Mrs. A. V. Narasinga Rao College) with 503 scholars; 3 high schools—2 (for boys and girls) maintained by the Roman Catholic community, and another by the London Missionary Society—and a medical school for the instruction of students of the Hospital Assistant class.

A good civil hospital was founded in 1864 and endowed by a former Mahārājā of Vizianagram. It contains separate wards for the different castes, each ward being erected at the expense of the caste concerned, and has accommodation for 77 in-patients. There is also a women and children's hospital, with accommodation for 14 in-patients, under a lady apothecary, and one of the three lunatic asylums in the Province, which can hold 96 patients.

Vizianagram Town.—Head-quarters of the *tahsīl* and subdivision of the same name in Vizagapatam District, Madras, situated in 18° 7′ N. and 83° 25′ E., 522 miles by rail from Madras and 507 miles from Calcutta, about 16 miles from the sea. It is a rapidly growing place, and the residence of the Rājā of Vizianagram, whose ancestor Viziarāma Rāz founded it and gave it his name; the second largest town in the District, and a centre of trade; a cantonment and a municipality. The population in 1901 numbered 37,270, of whom 34,542 were Hindus, 2,189 Muhammadans, and 518 Christians. The municipality was established in 1866. During the ten years ending 1902-3 the receipts and expenditure both averaged Rs. 33,000. In 1903-4 the receipts were Rs. 39,000 and the expenditure Rs. 41,000. Most of the receipts are derived

from the taxes on houses and lands and from tolls. A water-supply scheme, estimated to cost nearly 3 lakhs, has been postponed for the present on financial grounds. The town itself is well built and contains a fine market and town-hall, besides a large fort, in which the Rājā's palace is situated. North of this lies a considerable tank, on the opposite side of which are the cantonment and the railway station. The troops in the former usually consist of a wing of a regiment of native infantry. The climate is very healthy, though sultry in the hot season.

Vizianagram is a centre of trade between the port of Bimlipatam and the hill country of the District, and will be the southern terminus of the proposed railway to Raipur in the Central Provinces. It contains a first-grade Arts college, which is entirely maintained by the Rājā, with an attendance of 446 students, 43 of whom are reading for the B.A. degree.

Yellamanchili.—Head-quarters of the Sarvasiddhi *tāluk* in Vizagapatam District, Madras, situated in 17° 33′ N. and 82° 52′ E. Population (1901), 6,536.

GODĀVARI DISTRICT

Boundaries, configuration, and hill and river systems.

Godāvari District.—A District on the north-east coast of the Madras Presidency, lying between 16° 19′ and 18° 4′ N. and 80° 52′ and 82° 36′ E.[1], with an area of 7,972 square miles. It is bounded on the north-east by Vizagapatam District; on the north by the same District and the Central Provinces; on the west by the Nizām's Dominions; and on the south-west by Kistna District. It consists of three very dissimilar natural divisions: namely, the Agency tract in the north-west, the delta of the Godāvari river along the coast, and the upland *tāluks*, which lie midway between these two areas.

The north-western angle of the District, known as the Agency tract from the administrative system there in force[2], is almost entirely occupied by a portion of the range of the EASTERN GHĀTS, which here consists of a series of broken and scattered hills and spurs rising from the lower uplands. The highest peak is Peddakonda, 'big hill' (4,476 feet).

The great river GODĀVARI, which gives its name to the District and forms its most distinctive feature, enters the Bhadrāchalam *tāluk* west of the Ghāts, and, until it begins to wind its way through the Pāpikonda range, forms the boundary between British territory on the left bank and Hyderābād on the right. Emerging from the Ghāts into a gently undulating plain broken here and there by a few small hill ranges, it runs right through the centre of the District proper. Forty miles from the sea, opposite Dowlaishweram, it divides into two branches, enclosing between them the Amalāpuram *tāluk*, and flows through a wide delta which its own silt has formed. At the head of this, at Dowlaishweram, is the famous anicut, or dam, which has been constructed to render its waters available for irrigation; and from this point to the sea the country is a vast expanse of rice-fields dotted with gardens and villages. During the rains the greater part of this tract becomes one

[1] While this work was passing through the Press the limits of the old Godāvari District were altered, the *tāluks* of Yernagūdem, Ellore, Tanuku, Bhīmavaram and Narasapur (less Nagaram Island) being transferred to Kistna District. The transfer of the Nugar, Albaka, and Cherla *tahsīls* (about 600 square miles) from the Central Provinces to Godāvari District is under consideration. The present account deals with the District as it was before these alterations occurred.

[2] See the article on Ganjām District.

sheet of water, only village sites, canal banks, roads, and field boundaries appearing above it. Later in the year, as the rice grows higher, the dividing boundaries are hidden; and the whole country looks like a single rice-field, only the palm-trees along the edges of the fields, the groves round the villages, the road avenues, and the white sails of the boats gliding along the main canals breaking the uniform sea of waving green crops. By common usage the alluvial tracts along the left and right banks of the river are designated the Eastern and Western Deltas, while to the delta proper, the Amalāpuram *tāluk*, is given the name of Central Delta. The Eastern Delta extends east from Dowlaishweram as far as Sāmalkot, including the greater part of the Rāmachandrapuram and Cocanāda *tāluks*. The Western Delta extends westward from the river to Ellore and thence southward along the Colair Lake, and its outlet the Upputeru stream, to Narasapur. It includes the *tāluks* of Tanuku, Narasapur, and Bhīmavaram.

The upland *tāluks* form the third natural division of the District. Yernagūdem and Ellore are an undulating plain broken by low ranges. East of the Godāvari river, Tuni consists of stony soil with small hills, covered, despite their steepness, with forest; Pithāpuram teems with fruit trees and is watered by many channels and tanks; and in Rājahmundry and Peddāpuram 'wet' land alternates with long stretches of stony waste.

The District has a seaboard of about 172 miles. The coast is low and sandy, interspersed with tidal swamps and creeks. Its general trend is in a north-easterly direction; but the greater part is within the influence of the Godāvari river and is continually changing its contour. The only port with any trade is COCANĀDA, and even there, owing to shoal-water, vessels are obliged to anchor in the roadstead $4\frac{3}{4}$ miles from the shore. There are lighthouses at Vakalapūdi, 4 miles north of Cocanāda, and on the SACRAMENTO SHOAL; while the abandoned light at Cocanāda port, that on Hope Island, and the obelisk 45 feet high on Narasapur Point form conspicuous sea-marks.

Besides the Godāvari and its tributary the Sābari, there are no rivers of any size in the District. But several minor streams drain the upland *tāluks* and are more or less used for irrigation. Of these the Yeleru, running through the Peddāpuram *tāluk* and the Pithāpuram *tahsīl*, and the Yerrakālva, which under the name of Wayyeru becomes merged in the Western Delta canal system, are the most important.

Geology.

The Archaean gneissic rocks of the District are confined to its north-west portion, on each side of the Lower Gondwānas which are found there. The Lower Gondwāna basin of permo-carboniferous to triassic fresh-water arenaceous deposits lies at gentle angles on the gneissic floor, comprising a basal boulder-bed of glacial origin, a lower (Barākar) coal-bearing stage, and an upper (Kamptee) stage of barren sandstones. From this basin upwards the Lower Gondwānas and Archaeans are levelled away towards the 3,000 feet plateaux as if by a series of planes of marine denudation. On one of these lie the Upper Gondwānas, which run in a low escarpment south-west and north-east from Rājahmundry. Finally above this and the other rock groups lie the slightly older Cuddalore sandstones, on which in turn rest the deposits of the plains and of the Godāvari Valley.

Botany.

The physical conformation of the District permits the existence of several distinct floras; and the native plants have been more carefully studied here than elsewhere, owing to the residence of the botanist Roxburgh for some time at Sāmalkot. The delta teems with weeds of cultivation, the uplands yield the plants of the dry scrub forest, while the hill tracts present an entirely different series. The deep ravines near BISON HILL afford the nearest approach to a moist evergreen forest to be met with in this part of India. Among the interesting plants of the Godāvari gorge may be noted *Barleria strigosa*, *Oldenlandia nudicaulis*, and *Sauropus quadrangularis*. Bordering the stream and in the rapids *Euphorbia Lawii* flourishes, while on the banks such exotic ferns as *Luffa echinata* and *Melilotus parviflora* are found[1].

Fauna.

The Agency tract possesses the larger fauna usual to such wild and remote regions. Bison (*gaur*) frequent the table-lands of the Pāpikonda range, and wild buffalo are occasionally met with on the banks of the Sābari. *Nīlgai* have been shot in the Bhadrāchalam *tāluk*. In the plains antelope, spotted deer, and wild hog are to be found in several localities. The District is rich in bird life, and among the rarer birds may be mentioned the imperial pigeon, pied myna, and *bhimarāj*. The large sable-fish is caught in considerable quantities at the anicut across the Godāvari.

Climate and temperature.

The District is on the whole a healthy one, but fever is very prevalent, especially during the cold season. The Agency tracts in particular are notorious in this respect, and the malaria peculiar to the Guditeru valley is of a virulent type.

[1] *Vide* Roxburgh's *Coromandel Plants*.

The natives consume considerable quantities of opium as a prophylactic against the disease. Beri-beri is common along the coast. The mean temperature at Rājahmundry, in the centre of the District, averages 82°, with a mean range of 18°; but the humidity of the atmosphere renders the heat oppressive. In Bhadrāchalam and the hill tracts generally the temperature has a much wider range.

Rainfall.

The first four months of the year are practically rainless. The south-west monsoon, which sets in about the middle of June, brings nearly two-thirds of the annual fall. It naturally breaks more heavily in the Bhadrāchalam *tāluk* beyond the Ghāts than in the rest of the District. Conversely the north-east monsoon is hardly felt in that *tāluk*. The annual fall for the whole District averages 31 inches. The coast is much exposed to north-easterly cyclones, and in 1787, 1832, and 1839 immense loss was caused by them. In the first two of these more than 20,000 persons are said to have perished, and the last was even more destructive of property. Floods in the Godāvari have also been a frequent source of damage. Although banks were very early raised for the protection of the country, six villages in the Yernagūdem *tāluk* were swept away in 1886, and there were extensive inundations in 1891 and 1900.

History.

In early times the District included parts of the two ancient kingdoms of KALINGA and VENGI. The frontier between these two was a varying one, but it was never farther south than the Godāvari river, and generally lay far to the north of the District, in Vizagapatam or even Ganjām. The southern border of Vengi seems never to have been farther north than the Kistna, and that kingdom often extended many miles to the south and west. The earliest rulers of the country of whom we have any knowledge were the Andhras. These were conquered by Asoka in 260 B.C., but subsequently ruled for about 400 years independently over a wide empire extending nearly to Bombay and Mysore. They were followed in the early part of the third century A.D. by Pallava chieftains, two of whom had their capitals at Vengi near Ellore and PITHĀPURAM. In the seventh century the country passed under the Eastern Chālukyas, who extended their rule far into Vizagapatam and made RĀJAHMUNDRY their capital. Asoka, the Andhras, and the Pallavas had been Buddhists; the Chālukyas were Vaishnavites. The last became the feudatories (in A.D. 999) of the great CHOLA empire; and the kingdoms were united till the middle of the twelfth century, when the Chola power began to decline and Vengi came first under a number of petty chiefs,

and (at the end of the thirteenth century) under the Ganpati dynasty of WARANGAL. This fell before the Muhammadans, who obtained a brief foothold in the country in 1324; but the invaders were soon driven back, and the Vengi country passed to the Reddi kings of Kondavīd and Rājahmundry. About the middle of the fifteenth century the Vengi and Kalinga countries were united under the rule of the Gajapatis of Orissa. The Muhammadans now reappear on the scene. In 1470 Rājahmundry and Kondapalli were ceded to the Sultān of Gulbarga in return for his assistance, and a few years later he subdued the whole of the Gajapati dominions; but the dismemberment of the Gulbarga kingdom a few years later restored the power of the Gajapatis before the end of the century. At this point Krishna Deva, the greatest of the Vijayanagar kings, overran the country (1515) and made it for a short time feudatory to himself; but this had no lasting effect, and before *1543* the first Sultān of Golconda had quarrelled with the Gajapati princes and had extorted a cession of all the country between the Kistna and the Godāvari. Revolts in these provinces and assistance offered by the Gajapati prince of Rājahmundry to the rebels provoked the Muhammadans to cross the Godāvari and extend their rule farther to the north-east. Rājahmundry fell in 1572, and a few years later the whole of this Presidency north of the Godāvari came under the Sultāns of Golconda, and was held by them till their overthrow by Aurangzeb in 1687. The power of Delhi was little felt so far from the centre of the empire, and the great *zamīndārs* now made themselves practically independent. Then came the disintegration of that empire, and Asaf Jāh, Sūbahdār of the Deccan, restored order with a firm hand.

Europeans had by this time been long established in the District. PĀLAKOLLU, near Narasapur, was the first settlement, founded by the Dutch in 1652. They next formed a station at Jagannāthapuram, now part of Cocanāda. The English followed with settlements at MADAPOLLAM, now included in the Narasapur Union, and at VĪRAVĀSARAM (Virasheroon), a few miles north-west of the former. In 1708 a third factory was founded at INJARAM, and later a fourth at BANDAMŪRLANKA. About the same time the French possessed themselves of YANAM, which they still hold. In 1750 the Sūbahdār of the Deccan granted Narasapur, and in 1753 the rest of the NORTHERN CIRCĀRS, to the French, who in 1757 seized the English factories within this District. The following year an expedition under Colonel Forde from Bengal defeated the French

at Condore[1] (Chandurti) near Pithāpuram. By the subsequent operations English supremacy in the Circārs was secured; and when these were ceded in 1765 the Godāvari District, which was included in the *Sarkārs* of Rājahmundry and Ellore, passed to the English. At first it was leased to the Faujdār Husain Alī Khān, but in 1769 it was placed under the direct administration of the Chief and Council at MASULIPATAM. The latter proved incapable of coping with the turbulence of the *zamīndārs*, and in 1794 Collectorates were established at Cocanāda, Rājahmundry, and Mogalturru. Several changes were made in this arrangement until, in 1859, the Districts of Rājahmundry, Masulipatam, and Guntūr were re-formed into the Godavari and Kistna Districts. The factories which were the original cause of the acquisition of the *Sarkārs* were abolished in 1830. The sudden cessation of a large industry, concurring with a period of scarcity, caused a great deterioration in the District. It was partly in consequence of this that the plan for building an anicut across the river finally took shape. The effect of this project (completed in 1850) on the prosperity of the District has been enormous. In 1874 the *tāluks* of Bhadrāchalam and Rekapalli (since amalgamated) were transferred from the Central Provinces. In 1879 these *tāluks* and the Rampa hill country were constituted an Agency under the Scheduled Districts Act of 1874. By this enactment the Collector, as Agent to the Governor, has extended powers within such areas. The limits of the Agency have since been changed considerably from time to time. In 1879 the serious disturbances known as the Rampa rebellion broke out in the hill country. They were not finally quelled till 1881, and were the last disturbance of the kind in the Presidency in which the help of troops has been required.

Archaeology.

The mounds at Pedda Vegi and Dendulūru near Ellore are supposed to mark the site of the capital of the Buddhist dynasty of Vengi. At Guntupalli, 24 miles north of Ellore, is a remarkable series of Buddhist remains; and at Arugollu in the Yernagūdem *tāluk* excavations in laterite have disclosed the foundations of similar buildings. Near Kāmavarapukota (in the Ellore *tāluk*) and at Korukonda are rock-cut figures of Hindu origin. Some inscriptions of value are to be found in the numerous temples of the District, notably at Drākshārāma; while the mosque at Rājahmundry possesses a Muhammadan record, dated A.D. 1324, one of the earliest of that religion in Southern India. In the Bhadrāchalam *tāluk* there are rude

[1] Orme describes in detail this decisive engagement.

stone monuments, under which remains indicating a primitive civilization have been found. At Pālakollu, Narasapur, and Jagannāthapuram are interesting relics of the early European settlements.

The people.

The population of Godāvari District in 1871 was 1,592,939; in 1881, 1,791,512; in 1891, 2,078,782; and in 1901, 2,301,759. It has increased at the abnormally high rate of 45 per cent. during the last thirty years. The District contains 2,678 towns and villages; but of these 1,141 are in the Agency tract, where there are no towns and the villages are exceptionally small. It is divided into twelve *tāluks* and *tahsīls* in the plains and four in the Agency tract, for which statistical particulars, based on the Census of 1901, are appended:—

Tāluk or *Tahsīl.*	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Agency Tract.							
Polavaram	564	...	292	58,274	103	+14.6 (Polavaram, Yellavaram and Chodavaram together)	1,183
Yellavaram	950	...	297	29,681	31		174
Chodavaram	715	...	232	23,229	32		211
Bhadrāchalam	911	...	320	48,658	53	+15.0	1,183
Cocanāda	294	2	99	213,758	727	+16.5	12,213
Tuni	216	1	48	58,762	272	+ 2.3	1,938
Pithāpuram	191	1	48	84,089	440	+ 0.3	3,125
Peddāpuram	504	1	200	167,020	331	+ 3.2	4,500
Rāmachandrapuram	296	1	117	220,356	744	+11.0	8,839
Rājahmundry	350	2	85	161,070	460	+14.1	9,642
Amalāpuram	506	1	169	277,445	548	+ 8.3	12,568
Ellore	778	1	206	181,035	233	+ 5.5	9,866
Yernagūdem	568	...	115	140,048	247	+ 8.6	4,308
Narasapur	433	3	129	254,961	589	+11.2	12,764
Tanuku	371	...	174	238,758	644	+17.0	11,471
Bhīmavaram	325	...	134	144,615	445	+17.5	8,027
District total *	7,972	13	2,665	2,301,759	289	−10.7	102,012

* The area of the remodelled Godāvari District is 5,634 square miles, and its population 1,445,961.

The head-quarters of these *tāluks* and *tahsīls* (except of Yernagūdem and Yellavaram, which are at Kovvūru and Addatigala respectively) are situated at the places from which each takes its name. The chief towns are the three municipalities of Cocanāda, Rājahmundry, and Ellore; and the Unions of Sāmalkot, Pithāpuram, Peddāpuram, and Pālakollu. Of the total population Hindus number 2,236,283, or 97 per cent.; Muhammadans, 43,481; Christians, 16,795; Animists, 4,139; and 'others,' 1,061. Immigration (chiefly from Vizagapatam)

is a marked feature of the District, and sets mainly towards the delta. This forms the most densely populated area north of Madras, in strong contrast to the Agency tract, which, with 51 persons to the square mile, is the most sparsely peopled area in the Presidency. Telugu is the language of 96 per cent. of the people. In the Bhadrāchalam *tāluk*, however, about one-half, and in Polavaram about one-fourth, of the people speak Koyi, the language of the Koyi hill tribe.

Their castes and occupations.

The Koyis make up about a third of the whole population of the Agency, where they number more than 50,000. In the adjoining Malkangiri *tahsīl* of Vizagapatam District there are also some 11,000 of them. They are a simple, unsophisticated race, who subsist by a shifting cultivation called *podu*, and are a prey to the malaria endemic in these regions. In the plains almost the whole population consists of Telugu castes. Of these the most numerous are the Kāpus (457,000) and Mālas (391,000). Next come the Idigas (toddy-drawers), numbering 167,000, or seven-tenths of the total strength of the caste in the Presidency; the Mādigas (114,000); and the Kamma cultivators (110,000). Brāhmans, who are more numerous than usual, form nearly 5 per cent. of the Hindu population.

The Agency tract forms the most exclusively agricultural area in the Presidency. The low country differs little from the normal. As usual, the great majority of the people are dependent on the land, though the proportion subsisting by transport is increased by the large number of boatmen working on the canals.

Christian missions.

The number of Christians in the District has increased from 9,064 in 1891 to 16,795 in 1901; the advance during the past twenty years has exceeded 300 per cent. Of the total, 15,836 are natives of India. Lutherans (6,510) and Baptists (5,129) are the two most numerous sects. Four Protestant missions are at work: the Canadian Baptist, the American Evangelical Lutheran, the Anglican, and the Plymouth Brethren (Delta Mission). The work of these is chiefly confined to the plains; but the Anglican Mission has a branch at Dummagūdem in the Bhadrāchalam *tāluk*, where work is carried on among the Koyis. These missions combine educational with evangelical aims. The native Roman Catholics number 688, mainly in the large towns.

General agricultural conditions.

The upland and delta *tāluks* differ widely in their agricultural conditions. Of the 1,173 square miles of occupied land in Government villages in the delta, 73 per cent. was classed as silt at the resettlement. The sandy tracts along the sea-coast

and the black cotton soil which occurs mainly in the tract round the Colair Lake account for the remainder. And, although the delta contains a certain amount of 'dry' land, almost the whole of this is commanded by the Godāvari irrigation system. The *lankas*, as the islands formed by the river deposits are termed, deserve special mention on account of their great fertility. They consist of loam covered in places with deep layers of sand; and, being submerged in times of flood, they fluctuate in position and area. Their total extent is about 15,000 acres. Lanka tobacco is famous.

In the upland *tāluks* red soils predominate, the sandy red variety being the most prevalent. The fertile Yeleru Valley in the Yellavaram and Peddāpuram *tāluks* and the cotton soil tracts of Rājahmundry are noticeable exceptions. In the Agency tract, where the country is covered with hills and forests, *podu* cultivation is practised. A clearing is made in the jungle, the trees are burned, and the crop sown in the ashes. The following year a fresh site is chosen.

Chief agricultural statistics and principal crops.

Of the total area of Godāvari District only 3,897 square miles are Government land, the remaining 4,075 square miles being held on *zamīndāri* or *inām* tenure. The area in 1903-4 for which particulars are available is given below, in square miles:—

Tāluk or *tahsīl*.	Area shown in accounts.	Forest.	Cultivable waste.	Cultivated.	Irrigated.
Agency Tract.					
Polavaram	413	112	32	65	1
Yellavaram	501	165	11	60	3
Chodavaram	3	...	...	2	...
Bhadrāchalam	751	460	29	26	...
Cocanāda	186	86	1	87	70
Tuni	2	...	...	2	...
Pithāpuram	...	...	...	...	...
Peddāpuram	467	72	9	252	55
Rāmachandrapuram	231	...	...	203	144
Rājahmundry	364	34	25	236	49
Amalāpuram	342	13	10	232	96
Ellore	508	44	103	296	100
Yernagūdem	310	13	12	238	24
Narasapur	389	16	26	283	198
Tanuku	274	6	3	235	198
Bhīmavaram	238	7	23	183	148
District total	4,979	1,028	284	2,400	1,086

About a fifth of the total area is forest, and another fourth is

otherwise not available for cultivation. The margin of cultivable waste is unusually small. Of the cultivated area, 464 square miles, mainly in the delta *tāluks*, are cropped more than once within the year. Rice is grown on 1,156 square miles, or 52 per cent. of the gross area cropped, and is pre-eminently the staple food-grain of the District. Next come *cholam* (*Sorghum vulgare*), with 144 square miles; and pulses, chiefly horse-gram and green gram, with 270 square miles. Rice is the principal crop in all the plains *tāluks* except Yernagūdem; while *cholam* and *rāgi* (*Eleusine coracana*) are grown in the upland *tāluks* and the Agency. Of industrial crops, oilseeds (among which gingelly takes the first place) are the most important. Tobacco is raised throughout the District, except in the Bhīmavaram *tāluk*, and mainly on the *lankas* in Rāmachandrapuram, Amalāpuram, and Rājahmundry. Sugar is of importance in Rāmachandrapuram, Cocanāda, and Narasapur, but a disease which has attacked the canes during the past few years has caused a great contraction in its cultivation. A large area is under orchard and garden crops, chiefly in Amalāpuram and Narasapur, where more than 32,000 acres are devoted to coco-nut plantations. Indigo, formerly cultivated on an extensive scale, is now practically confined to Amalāpuram. Narasapur, with the gardens of Pālakollu, stands unique in the cultivation of the Batavian orange and pummelo, introduced by the Dutch settlers.

Improvements in agricultural practice.

During the last thirty years the cropped area has increased by more than 50 per cent. and now exceeds a million acres. In the District proper it is only in the northern part of Ellore and in the swamps bordering the Upputeru in the Western Delta that any considerable extent of arable land remains unoccupied. In the uplands, however, much is yearly left fallow for the sake of pasturage. Various attempts have been made from time to time to improve the industrial crops, but little perceptible influence has so far been exercised. The area under valuable orchard and garden crops is, however, rapidly increasing. A Government experimental farm has been started at Sāmalkot, and a nursery garden at Kadiam in the Eastern Delta. Practically no advantage is taken of the Loans Acts in this District.

Cattle and sheep.

There are no distinctive breeds of cattle. Mortality among stock is high in the delta, where the conditions prevent a large number being maintained, and in the cultivation season they are sent to the upland *tāluks* to graze. In these latter large flocks of sheep and goats are kept; but the Kurumba sheep, bred for the sake of its wool in the villages round Ellore, is the only variety calling for remark.

Irrigation

Of the total area of *ryotwāri* and *inām* lands under cultivation in 1903-4, 1,086 square miles, or 62 per cent., were irrigated. The greater part of this (938 square miles) was supplied from Government canals, and almost all the remainder from tanks or artificial reservoirs. The canals are mainly those fed by the Godāvari anicut, a great masonry dam thrown across the Godāvari river opposite Dowlaishweram. A canal takes off from either flank, and a third, supplying the Central Delta, from the centre. The area commanded by the system is 1,980 square miles, of which 1,207 square miles are cultivable. The area actually irrigated at present is about 1,034 square miles; but including both first and second-crop cultivation, water was supplied to 1,254 square miles in 1903-4. As the Godāvari is independent of the local rainfall, the irrigated area fluctuates little from year to year. In the Ellore *tāluk* there is a considerable area (about 20,000 acres) under the Kistna anicut system. The number of tanks in repair in the District is 1,188. Of these the most important are the chain in the Peddāpuram *tāluk* and the Lingamparti tank, which latter irrigates 5,000 acres. The little river Yeleru waters a large area, principally in the PITHĀPURAM ESTATE and the adjoining *zamīndāris*. The Yerrakālva in Yernagūdem and the Tammileru and the Ramileru in Ellore are also utilized. Only 1,392 wells are used for irrigation.

Forests.

The forests of Godāvari, owing to their diversity and the facility with which they can be exploited, are of great value. The District possesses 952 square miles of actual 'reserved' forest and 76 square miles of 'reserved' land, the latter lying entirely within the Cocanāda *tāluk*. The forests proper are situated chiefly within the Agency limits. Here the destructive practice of shifting cultivation (*podu*) formerly caused great damage, and its results are very apparent in some localities. It has now been prohibited within 'reserved' forests; but is still permitted without check in the Rampa country, to which, for political reasons, the Forest Act has not been extended.

The principal 'reserved' forests are those of Bhadrāchalam, Yellavaram, and Polavaram. The first-named contains three ranges, Rekapalli, Marrigūdem, and Bhadrāchalam. Of these Rekapalli contains, as its dominant species, large quantities of *Xylia dolabriformis*; and as the timber can be sawn into sleepers and floated down the river direct to the railway, this growth is of great value. With *Xylia* are associated *Terminalia*, *Pterocarpus Marsupium*, *Dalbergia latifolia*, and bamboos. The principal tree in the Marrigūdem range is teak, and in Bhadrā-

chalam *Hardwickia binata*. The Yellavaram and Polavaram forests resemble generally those in the Rekapalli range. In the western part of the Agency, *Diospyros melanoxylon* also flourishes. Myrabolams and tamarind are the principal items of minor produce. Along the coast are large tracts of mangrove swamp, and there are three casuarina plantations. The revenue from forests in 1903-4 was about 1¾ lakhs, and the expenditure about 1 lakh. A second District Forest officer has recently been appointed, with head-quarters at Kunavaram.

Prospecting for coal has been carried on for some years in the Upper Gondwāna belt, running from Bhadrāchalam through Polavaram and Yernagūdem to Ellore. Two outcrops of the Barākar stage occur, one at Ratsagampalle in Bhadrāchalam and the other at BEDADANŪRU in Polavaram. At the former place mining was begun, but was stopped by an upthrow fault; and the shaft, which was in the river bed, was found to lie beyond the limits of the Presidency. At the latter the outcrop extends over 5½ square miles, and forms the only coal-field lying entirely within Madras. No paying seam has, however, as yet been discovered. Graphite of a good quality is worked by the Godavari Coal Company at Perakonda in the Bhadrāchalam *tāluk*, and the same mineral occurs in small quantities in several places in Chodavaram. Traces of old iron workings are to be found scattered throughout the Agency tract, and there are two small deposits of sulphur in the delta. Minerals.

Ellore is noted for its woollen carpets. The dyes and wool for these are prepared locally, and well-woven carpets of old design can still be obtained, though several of the weavers now work on European patterns for the big firms in London. Coarse woollen blankets are made in several villages round Ellore, and at Undi in the Bhīmavaram *tāluk*. The fine cotton cloths for which the District was once famous are now made only at a few villages round Cocanāda and Pālakollu. Coarse cotton cloths are, however, still woven at many places. Arts and manufactures.

The largest factory in the District is the sugar refinery and distillery at Sāmalkot, where the Deccan Sugar and Abkāri Company employs 520 persons daily. This factory has created a demand for jaggery (coarse sugar) made from the unfermented juice of the palmyra palm, and more than 400,000 trees in the District are tapped for toddy to be converted into this substance. There are rice-husking factories at Nīlapalli, Nidadavolu, and Cocanāda. Several small castor-oil factories

are at work at Cocanāda, and two tanneries at Ellore. Cocanāda also possesses a small iron foundry, and the Public Works department workshops at Dowlaishweram employ a large number of hands. In the Amalāpuram *tāluk* are several indigo factories, the principal being at Ainavilli. Of the three salt factories in the District, one (at Cocanāda) belongs to a private firm, while those at Penugudūru and Mogalturru are worked by Government. Three fish-curing yards also exist. A small cheroot factory has been opened at Cocanāda.

Commerce. The exports from the District consist almost entirely of agricultural produce. The chief items are rice, other grain, tobacco, oilseeds, *ghī*, coco-nuts, hides, and fruit. The natural outlet for this trade is the port of Cocanāda, though the railways and canals have diverted an increasing proportion to other ports. In addition to these commodities, cotton, brought from the Deccan, figures largely in the exports from Cocanāda. It is shipped principally to the United Kingdom, Belgium, and France. Rice goes chiefly to Ceylon and Mauritius, oilseeds to France, Burma, and the United Kingdom, and tobacco to Burma, where it is made up into cheroots. The total value of the export trade from Cocanāda in 1903–4 was about 167 lakhs, of which 84 lakhs was sent to foreign countries. The imports were valued at 39 lakhs in the same year. The principal are cotton twist and yarn, piece-goods, grain and pulses, kerosene oil, gunny-bags, and sugar. Cotton goods are imported coastwise or by canal and rail from Bombay and Madras, gunny-bags from Bengal, and kerosene oil from America. A prominent trading caste are the Mārwāris, who are numerous at Rājahmundry and Ambājipeta, the old centres of trade. Ambājipeta used to be the great opium market of the District, and the Mārwāris probably chose these towns as convenient places for disposing of that drug in exchange for cloth. Opium is still a noteworthy article of import, the annual consumption in this District being about 11 lb. per 1,000 of the population, compared with an average of 1½ lb. for the Presidency as a whole. As has been mentioned, it is used as a prophylactic against malaria. The retail trade of the District is largely in the hands of the Komatis. The chief centres of internal commerce are Rājahmundry, where there are large dépôts for the timber floated down the Godāvari; Ellore, Pālakollu, and Ambājipeta. The last-named is the centre of the coco-nut trade of the delta, and all these places carry on an extensive business with tracts

beyond the District. There are also numerous weekly markets, at which retail trade is carried on. They are controlled by the local boards, which in 1903-4 derived an income of Rs. 32,000 from the fees collected at them. The most important are those at Tuni, Jaggammapeta, and Pentapādu. At Drākshārāma, Ambājipeta, and Piṭhāpuram large cattle fairs are held weekly.

Railways, roads, and canals.

The East Coast section of the Madras Railway (standard gauge) enters the District about 10 miles west of Ellore, and running along the fringe of the delta crosses the Godāvari river at Rājahmundry on one of the finest bridges in the Province. This work is built of steel girders laid on masonry piers, which are sunk from 48 to 100 feet below low-water level and stand $44\frac{3}{4}$ feet above it. It has a total length of 9,000 feet, or over $1\frac{1}{2}$ miles, between abutments, and consists of 56 spans of 150 feet each. It was opened to traffic in 1900. From Rājahmundry the line runs on to Sāmalkot, where a branch 10 miles long takes off to Cocanāda port, and thence northeastwards until it leaves the District at Tuni on the Vizagapatam border.

The total length of metalled roads is 918 miles, and of unmetalled roads 299 miles. Five miles of metalled roads are maintained by the Public Works department, and the remainder by the local boards. There are avenues of trees along 814 miles of them. The District proper is well supplied with metalled roads; but in the Agency tract the only lines are those leading to Addatigala and Chodavaram and a few miles in Polavaram. No tolls are levied along the roads, except in the municipalities.

Most important means of communication are the 493 miles of navigable canals in the delta, and above the anicut the Godāvari river itself, which affords the easiest approach to the interior. The canals are closed for clearance and repair for two months during the hot season every year. Ferry steamers ply from Rājahmundry to the opposite shore of the river, and up to Polavaram and across the river at Narasapur.

Famine.

Since the construction of the Godāvari irrigation system, the District has been immune from severe famine. The last serious distress was in 1833, but in 1896-7 a part of the Agency tract was affected.

District subdivisions and staff.

For administrative purposes the District proper is divided into four subdivisions, two of which are usually in charge of members of the Covenanted Service, and the others

in charge of Deputy-Collectors. These subdivisions[1] are Cocanāda, which comprises the *tāluks* of Cocanāda and Peddāpuram and the *zamīndāri tahsīls* of Pithāpuram and Tuni; Rājahmundry, comprising the three *tāluks* of Rājahmundry, Rāmachandrapuram, and Amalāpuram; Ellore, comprising the three *tāluks* of Ellore, Tanuku, and Yernagūdem; and Narasapur, comprising the Narasapur and Bhīmavaram *tāluks*. The Agency forms a fifth division, usually in charge of a European Deputy-Collector. It consists of the Bhadrāchalam *tāluk* and the minor *tāluks* of Yellavaram, Chodavaram, and Polavaram. There is a *tahsīldār* at the head-quarters of each *tāluk*, and, except at Bhadrāchalam, a sub-magistrate also. In the minor *tāluks* the deputy-*tahsīldārs* exercise both revenue and criminal jurisdiction. The superior staff consists of the usual officers, except that (owing to the importance of the public works in this District) there are three Executive Engineers, one in charge of each of the three Delta systems mentioned above; and there are also two District Forest officers.

Civil justice and crime.

For the administration of civil justice regular District Munsifs' courts are held at the head-quarters of every *tāluk*, except Rāmachandrapuram and Yernagūdem, in the District proper. The District Judge sits at Rājahmundry, and a Sub-Judge at Cocanāda. In the Agency tract, the *tahsīldār* of Bhadrāchalam and the deputy-*tahsīldārs* have limited civil jurisdiction within their charges. From them appeals lie to the Agency Deputy-Collector, who himself tries the more important cases and is in turn subordinate to the Collector as Agent. Crime presents no salient features, but the total number of cases reported is higher than in any other District in the Presidency. This is specially noticeable as regards ordinary theft. Organized crime is attributable chiefly to a local tribe of Yānādis called Nakkalas, and to wandering gangs from the Ceded Districts.

Land revenue administration.

Under the Muhammadans the District, with the exception of the *haveli* land (or land in the vicinity of military posts required for the support of troops), was parcelled out into *zamīndāris*. The yearly rent on these was settled in a purely arbitrary manner, and the *zamīndārs* had in theory no other claim to them but the favour and policy of their rulers. Gradually, however, they arrogated to themselves a proprietary and hereditary title, which, in spite of a brief period of dis-

[1] Their limits have been changed since the alteration in the boundaries of the District above referred to, and the new distribution is given in the article on each subdivision.

possession under Asaf Jāh, obtained recognition in the end. The *zamīndārs* collected their revenues through agents or by sub-renting in their turn. 'By ancient and original establishment' the cultivators were entitled to half the gross produce. Unless, however, fortunate enough to have obtained a grant as *mokhāsa* or *inām*, they had no right in the soil; and after the customary fees had been paid and the rapacity of the *zamīndārs'* servants satisfied, only a fifth share usually remained for them. At the time of harvest the crop was valued, threshed, and measured; and the *zamīndār* then took his share in money or grain.

After the cession of the Northern Circārs (*Sarkārs*) no change was at first made in the mode of revenue administration. But soon some of the estates began to fall into Government possession, either through the rebellion of their owners or because the revenue on them was not paid. Such lands were as a rule rented out again by Government. In 1802–3 a permanent settlement on the model of that in Bengal was introduced. By this the estates of the *zamīndārs* were conferred on them in perpetuity, subject to a *peshkash* fixed at two-thirds of the estimated collections; while the Government lands were divided into similar estates and sold to the highest bidder. From 1803 to 1844 the downfall of these proprietary estates rapidly progressed, till in the latter year a large part of the District had reverted to Government. The revenue systems then adopted for the Government lands were the *asara* and *visabādi*. The leading principle of the former was the ascertainment of the Government share by actual measurement; of the latter, the imposition of a lump assessment on each village, the incidence on particular holdings being settled by the cultivators among themselves. These were superseded in 1846 by the joint revenue system, under which, when the annual demand on a village had been settled, there was no further interference on the part of Government, and the cultivators were jointly and severally responsible for the whole demand.

The completion of the Godāvari irrigation works rendered imperative the introduction of a more definite method for the realization of the land revenue. Accordingly in 1862 a field survey and settlement were commenced. These operations were completed in 1866, in which year the *ryotwāri* system was extended to practically the whole of the District proper. In 1891 sanction was given for a resurvey, which was completed in 1896. A resettlement was also taken in hand in

1894 and completed in 1899. By the latter the rates in the uplands were enhanced about one-third, without reclassification of the soils. In the delta a reclassification was made to permit the consolidation of the land tax and water rate, all land which had been continuously irrigated during the previous five years being classed as 'wet.' The result of the resettlement was an addition of $4\frac{2}{5}$ lakhs, or about 14 per cent., to the revenue from Government land. The average rates of assessment in the delta and the uplands for 'wet' land are respectively Rs. 7-9-4 and Rs. 4-10-2 per acre; and for 'dry' land Rs. 3-6-8 and R. 0-12-9.

The course of events in the Rampa country and the Bhadrāchalam *tāluk* was different. A few villages in the Agency tract were settled in 1899-1900, but in Polavaram and Yellavaram the majority of them are still farmed out annually. In the Government villages of the Bhadrāchalam *tāluk* the hillmen used to pay 4 annas for the area one axe can clear, or about three acres, but now they pay 4 annas an acre.

The revenue from land and the total revenue in recent years are given below, in thousands of rupees:—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue .	46,84	56,64	77,34	70,01
Total revenue .	57,02	74,24	1,02,37	1,07,35

Owing to the transfer of part of the District to Kistna, the land revenue demand is now about Rs. 43,20,000.

Local boards.

Outside the three municipalities of Cocanāda, Rājahmundry, and Ellore, local affairs are managed by the District board and the five *tāluk* boards, the areas under which correspond respectively with those of the five administrative subdivisions mentioned above. The expenditure of these boards in 1903-4 was about 10 lakhs. More than half of this was laid out on the maintenance and construction of roads and buildings. The chief source of income is the land cess. Twenty-five of the smaller towns are managed by Union *panchāyats*, constituted under Madras Act V of 1884.

Police and jails.

The District Superintendent of police has his head-quarters at Rājahmundry. He has an Assistant Superintendent to help him. There are 84 police stations in the District; and the regular force, inclusive of a reserve of one inspector and 103 men, numbers 1,075, working under 19 inspectors, besides 835 rural police.

In addition to the Central jail at Rājahmundry there are 20 subsidiary jails, which can collectively accommodate 186 male and 121 female prisoners.

Education.

In the matter of elementary education Godāvari was the pioneer in the Madras Presidency, several villages having submitted to a voluntary cess for this purpose as early as 1855. Yet it now stands only sixteenth among the Districts as regards the literacy of its people. The percentage of those able to read and write is little more than 4 (8 among males, and 0·7 among females); and the Agency tract, where the percentage is less than 2, is naturally far more backward than the rest. But progress in recent years has been considerable. In 1880–1 the total number of pupils under instruction was 21,787; in 1890–1, 32,255; in 1900–1, 52,258; and in 1903–4, 61,510. On March 31, 1904, there were 1,740 educational institutions in the District, of which 1,518 were classed as public and 222 as private. Of the former 1,442 were primary, 70 secondary, and 3 training schools; and Arts colleges are maintained at Rājahmundry and Cocanāda, and a training college at the former of these places. These institutions contained altogether 13,939 girls. Of the total, 37 were managed by the Educational department, 445 by local boards, and 22 by the municipalities; while 586 were aided from public funds, and 428 were unaided but conformed to the rules of the department. As usual, the great majority of the pupils were in primary classes. This is specially marked in the case of female education. Of the male population of school-going age, 22·6 per cent. were in the primary stage, and of the female 7·8 per cent. Among Muhammadans the corresponding percentages were 105·5 and 34·7, far exceeding those in any other District. There were 308 schools for Panchamas, with 4,661 pupils. They are maintained principally by the missionary bodies. The total expenditure on education in 1903–4 was Rs. 3,90,000, of which Rs. 1,62,000 was derived from fees. Of the total, 58 per cent. was devoted to primary instruction.

Hospitals and dispensaries.

The District possesses ten hospitals and twenty dispensaries maintained from Local funds, with accommodation for 163 in-patients. In 1903 the number of cases treated was 310,114, of which 1,936 were in-patients, and 8,520 operations were performed. The expenditure was Rs. 67,000, of which all but 6 per cent. was derived from Local and municipal funds. Of private institutions the most important is the Killock Home for Lepers, opened at Rāmachandrapuram in 1900 by the Canadian Baptist Mission. It has now 70 inmates.

Vaccination. During the year 1903-4 the number of persons successfully vaccinated was 35·1 per thousand of the population, or slightly above the average for the Presidency. Vaccination is compulsory in the three municipalities and in ten of the Unions.

[Further particulars will be found in the *District Manual* by H. Morris (1878), and the *District Gazetteer* (1906).]

Polavaram Subdivision.—Subdivision of Godāvari District, Madras, consisting of the minor *tāluks* of POLAVARAM, CHODAVARAM, and YELLAVARAM.

Polavaram Tāluk.—Minor *tāluk* in the Agency tract of Godāvari District, Madras, lying between 17° 7′ and 17° 28′ N. and 81° 5′ and 81° 37′ E., with an area of 564 square miles. The population in 1901 was 58,274. It contains 292 villages, Polavaram being the head-quarters. The demand for land revenue and cesses in 1903-4 amounted to Rs. 64,000. The *tāluk* is situated on the right bank of the Godāvari river. At the point where the river enters stands BISON HILL, which belongs to the Pāpikonda range, running the whole length of the *tāluk*. There are extensive forests in Polavaram, the Government Reserves extending over 112 square miles. About 20 per cent. of the inhabitants belong to the hill tribe of Koyis. The picturesque island of Pattisima, a little below Polavaram, is the scene of a large yearly festival; and another festival is held at Taduvayi in the interior.

Yellavaram.—Minor *tāluk* in the Agency tract of Godāvari District, Madras, lying between 17° 18′ and 18° 4′ N. and 81° 44′ and 82° 16′ E., with an area of 950 square miles. The population in 1901 was 29,681. It contains 297 villages, all of which are very small, Addatigala being the head-quarters. The demand for land revenue and cesses in 1903-4 amounted to Rs. 20,900. The whole of the *tāluk* is hilly and, except in the fifteen settled villages adjoining the plains, is covered with dense forest. The Government forests alone have an area of 165 square miles, while those in the various estates cover 300 square miles. Most of the Government villages are rented out annually. The chief crops are rice, pulses, and oilseeds; but the hill people depend chiefly on the produce of tamarinds, which grow to a large size. The Guditeru *muttah* (estate), which was transferred to this District from Vizagapatam in 1881, forms part of this *tāluk*.

Chodavaram.—Minor *tāluk* in the Agency tract of Godāvari District, Madras, lying between 17° 9′ and 17° 52′ N. and 81° 28′ and 81° 53′ E., with an area of 715 square miles. It is bounded on the south and west by the Godāvari river,

and includes almost the whole of the RAMPA hill country. The population in 1901 was 23,229. It contains 232 villages, Chodavaram being the head-quarters. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 7,400. The whole area is occupied by the Eastern Ghāts, and forests cover nearly 575 square miles, of which 401 square miles belong to Government, but are not 'reserved,' the Forest Act not having been extended to this tract. In places the forests are very heavy, but it is impossible to exploit them owing to want of communications. There is only one metalled road, from Rājahmundry to Chodavaram. The forest products are timber, tamarinds, turmeric, oranges, wax, &c., which are brought by Māla traders to the markets at Chodavaram and Devipatnam. The chief crops are rice, pulses, *rāgi*, *cambu*, and maize, while a little tobacco is grown for local consumption. Graphite is met with in a few places, but not in paying quantities.

Bhadrāchalam.—Western subdivision and *tāluk* in the Agency tract of Godāvari District, Madras, lying between 17° 27′ and 17° 57′ N. and 80° 52′ and 81° 49′ E., with an area of 911 square miles. The *tāluk* is cut off from the rest of the District by the Eastern Ghāts, and extends along the left bank of the Godāvari river. The population in 1901 was 48,658, compared with 42,336 in 1891. It contains 320 villages, Bhadrāchalam being the head-quarters. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 23,000. Owing to its situation beyond the Ghāts, the climatic conditions of this *tāluk* are somewhat different from those of the remainder of the District. Variations in temperature are greater, and the rainfall is almost entirely due to the south-west monsoon. The *tāluk* is for the most part covered with hills and forests, the Government 'reserved' forests alone extending over 460 square miles, for which a District Forest officer has recently been stationed at Kūnavaram. The Sābari, a large river which joins the Godāvari at Kūnavaram, intersects it. *Cholam* (*Sorghum vulgare*) is the staple crop, though rice and a little tobacco are grown along the river banks.

Bhadrāchalam was formerly part of an estate in Hyderābād territory. It was ceded in 1860 and joined to the Central Provinces. In 1867 the minor feudatories in it were made practically independent of their suzerain, the *zamīndār* of Bhadrāchalam, while the forests and 104 hill villages over which the latter had never exercised authority were declared

state property. In 1874 the *tāluk* was transferred to the Madras Presidency, and in 1879 the Scheduled Districts Act of 1874 was applied to it.

Cocanāda Subdivision.—Subdivision of Godāvari District, Madras, consisting of the *tāluk* of COCANĀDA and the *zamindāri tahsīls* of TUNI and PITHĀPURAM.

Cocanāda Tāluk.—Coast *tāluk* in Godāvari District, Madras, lying between 16° 43′ and 17° 6′ N. and 82° 8′ and 82° 21′ E., with an area of 294 square miles. The population in 1901 was 213,758, compared with 183,505 in 1891. It contains two towns, COCANĀDA (population, 48,096), the District and *tāluk* head-quarters, and SĀMALKOT (16,015); and 99 villages. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 5,45,000. CORINGA and INJARAM, well-known seaports in the days of the early European settlements, are situated in this *tāluk*; and Tallarevu, near Coringa, is the only place in the District where shipbuilding is now carried on. The principal crop is rice, which is irrigated by canals from the Godāvari river.

Tuni Tahsīl.—*Zamīndāri tahsīl* on the north-east border of Godāvari District, Madras, lying between 17° 11′ and 17° 32′ N. and 82° 9′ and 82° 36′ E., with an area of 216 square miles. The population in 1901 was 58,762, compared with 57,448 in 1891. It contains one town, TUNI (population, 8,842), the head-quarters, and 48 villages. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 41,000. A large part of the *tahsīl* is covered with hills and jungle.

Pithāpuram Tahsīl.—*Zamīndāri tahsīl* in Godāvari District, Madras, lying between 17° 3′ and 17° 19′ N. and 82° 10′ and 82° 32′ E., with an area of 191 square miles. The population in 1901 was 84,089, compared with 83,824 in 1891. It contains one town, PITHĀPURAM (population, 13,220), the head-quarters, and 48 villages. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 2,90,000. The *tahsīl* lies on the coast to the north of the delta of the Godāvari, and receives a low rainfall. It would be an infertile area were it not for the excellent irrigation from the Yeleru river.

Pithāpuram Estate.—A permanently settled *zamīndāri* estate in Godāvari District, Madras, with an area of 383 square miles, of which the greater part lies in the *zamīndāri tahsīl* of Pithāpuram and the Cocanāda *tāluk*. The estate contains 168 towns and villages, and has a population (1901) of 280,317.

The total demand on account of land revenue and cesses in 1903–4 amounted to 4 lakhs.

After the subjugation of Godāvari District by the Sultān of Golconda (*circa* 1572), the *parganas* of Selapaka, Cocanāda, and Prolunādu (as the country round Pithāpuram was then called) were constituted a revenue farm. These *parganas* were the nucleus of the present Pithāpuram estate. In 1647 they were transferred, apparently because the holder had fallen into arrears, to Ravu Chandra Rāyanam, a court favourite. This Rāyanam was of the Velama caste, and from him the family still holding the estate traces its descent. As a special mark of favour he was allowed to repair and occupy the fort at Pithāpuram, which henceforward became the residence of the family.

For the next few years the history of the estate was uneventful; but, like its neighbours, Pithāpuram took advantage of the struggle for power in the Deccan to withhold the *peshkash*, or tribute. It shared their fate when Asaf Jāh, Nizām-ul-mulk, proved victorious (1724); and under the stern rule of his Sarlashkar, Rustam Khān, the recalcitrant *zamīndārs* were ousted and their estates brought under direct management. After Rustam Khān's death his successors for some time pursued the same policy, but about 1742 the estates were restored to the families of the former owners.

Pithāpuram took little part in the conflict between the French and the English. Some acts of hostility in conjunction with the neighbouring *zamīndār* of Peddāpuram led, however, to the seizure and occupation of Sāmalkot fort by the Company's troops in 1764. Otherwise the estate emerged intact from this troubled period, and in 1787 was described as one of the most fruitful and best cultivated *zamīndāris* under the Company. The *zamīndār* collected the land customs, and also claimed the sole right of manufacturing and vending salt in the Rājahmundry *Sārkar*. The military force maintained was small and merely sufficed for the collection of the revenue, which was paid almost entirely in cash—an unusual circumstance.

In 1802 the estate was permanently settled, when the revenue was estimated at about 4 lakhs and a *peshkash* of $2\frac{3}{5}$ lakhs was imposed. Up to 1827 considerable additions were made. In that year, owing to the minority of the holder, it came under the Court of Wards and, in common with similar estates in Godāvari District, passed through a period of depression. In 1844 it was heavily in arrears. To restore

the financial position most of the recently acquired portions were relinquished, and the ancient *zamīndāri* was handed over free of encumbrances to the proprietor. The estate is now (1906) again under the management of the Court of Wards, owing to the minority of the present holder.

The *zamīndāri* is very fertile. Much of it is watered by the Godāvari irrigation system, while the remainder is supplied by the small river Yeleru or by tanks. An engineering establishment is maintained to supervise the estate works in connexion with the Yeleru irrigation, which are numerous. The chief crops, as elsewhere in the District, are rice, other cereals, and oilseeds. Until quite recently the prevailing system of land tenure was the *vantu varadi*. Under this, each village was assessed for a term of years in a lump sum. The amount to be levied from each holding was then settled by a committee of the ryots themselves. Any person dissatisfied with the assessment imposed on his holding had the right to challenge the owner of a similar holding which he considered under-assessed. The latter had then to submit to an enhancement of his assessment, in which case the challenger received a corresponding diminution, or to exchange holdings. This system, owing to its manifold disadvantages, has now been almost abandoned, and in most cases the highest rent offered is assumed to be the proper rent of a holding, the leases being sold by auction. A field survey, to be followed by a regular settlement, is in progress, and the revenue system will probably in course of time be assimilated to that in Government land. The average rates paid for 'wet' and 'dry' land are Rs. 7-0-2 and Rs. 3-15-0 per acre respectively. The total income of the estate is 10½ lakhs, of which the land revenue brings in 9½ lakhs.

Among the places of importance within the *zamīndāri* are the towns of COCĀNADA, the District head-quarters, SĀMALKOT, and PITHĀPURAM. CORINGA, which also belongs to it, was once a well-known port, but its trade has now altogether disappeared.

Peddāpuram Subdivision.—Subdivision of Godāvari District, Madras, consisting of the PEDDĀPURAM and RĀMACHANDRAPURAM *tāluks*.

Peddāpuram Tāluk.—Inland *tāluk* in Godāvari District, Madras, lying between 16° 57′ and 17° 39′ N. and 81° 55′ and 82° 20′ E., with an area of 504 square miles. The population in 1901 was 167,020, compared with 161,841 in 1891. It contains one town, PEDDĀPURAM (population, 12,609), the

head-quarters, and 200 villages, of which Jaggammapeta is an important local market. The demand on account of land revenue and cesses in 1903-4 amounted to Rs. 3,89,000. The *tāluk* has a good system of irrigation from reservoirs, and the Lingamparti tank, the largest in the District, irrigates 5,000 acres. Along the Yeleru, a perennial stream running through it, is some exceptionally fertile soil. The greater part of the *tāluk*, however, is covered with hills and jungle. The chief crops are rice, oilseeds, *rāgi*, pulses, and (in the Yeleru valley) sugar-cane.

Rāmachandrapuram Tāluk.—*Tāluk* in the delta of Godāvari District, Madras, lying between 16° 41′ and 17° 3′ N. and 81° 49′ and 82° 13′ E., with an area of 296 square miles. The population in 1901 was 220,356, compared with 198,596 in 1901. It contains one town, MANDAPETA (population, 8,380), and 117 villages, Rāmachandrapuram being the head-quarters. The demand on account of land revenue and cesses in 1903-4 amounted to Rs. 11,60,000. The *tāluk* is the most densely populated and the richest in the District. Its soil is classed almost entirely as alluvial, and it is irrigated by numerous canals. The little French Settlement of YANAM is situated within it; while Kotipalli and Drākshārāma, two of its villages, are well-known places of pilgrimage.

Rājahmundry Subdivision.—Subdivision of Godāvari District, Madras, consisting of the RĀJAHMUNDRY and AMALĀPURAM *tāluks* and the NAGARAM ISLAND.

Rājahmundry Tāluk.—Inland *tāluk* in Godāvari District, Madras, lying between 16° 51′ and 17° 27′ N. and 81° 36′ and 82° 5′ E., along the left bank of the Godāvari river, with an area of 350 square miles. The population in 1901 was 161,070, compared with 145,789 in 1891. It contains two towns, RĀJAHMUNDRY (population, 36,408), the head-quarters, and DOWLAISHWERAM (10,304); and 85 villages. The demand on account of land revenue and cesses in 1903-4 amounted to Rs. 3,20,000. Some tracts of very fertile black cotton soil occur, but much of the area is rocky and covered with scrub jungle. The principal crops are rice, pulses, tobacco, and oilseeds. At Korukonda in the north is a large temple, which is resorted to by a great number of pilgrims throughout the year.

Amalāpuram Tāluk.—*Tāluk* in Godāvari District, Madras, lying between 16° 25′ and 16° 56′ N. and 81° 43′ and 82° 21′ E., with an area of 506 square miles. Excepting NAGARAM ISLAND, it comprises the whole area known as the Central Delta, lying between the two main branches of the

Godāvari, the Vasishta and Gautami. The population in 1901 was 277,445, compared with 256,081 in 1891. It contains one town, AMALĀPURAM (population, 9,510), the head-quarters, and 169 villages. The demand on account of land revenue and cesses in 1903-4 amounted to Rs. 9,47,000. Its numerous gardens have earned for the tract the name Konasīma ('country of gardens').

Nagaram Island.—Island in Godāvari District, Madras, lying between 16° 20′ and 16° 35′ N. and 81° 44′ and 81° 57′ E. It is surrounded by the western mouth of the Godāvari (Vasishta), a large branch of this called the Vainateyam, and the Bay of Bengal. The island has an area of 137 square miles, and is one of the most fertile parts of the fertile Godāvari District. The Gannavaram aqueduct across the Vainateyam connects it with the navigation and irrigation system of the Central Godāvari Delta. This work, the largest of its kind in the delta, consists of 49 arches of 40 feet span, and is constructed to carry 70,000 cubic yards of water per hour. It irrigates about 33,000 acres. A large part of the island is devoted to coco-nut plantations and plantain gardens.

Amalāpuram Town.—Head-quarters of the *tāluk* of the same name in Godāvari District, Madras, situated in 16° 34′ N. and 82° 1′ E., on the main canal of the Central Delta system, 38 miles south-east of Rājahmundry. Population (1901), 9,510. It possesses a high school and the usual *tāluk* offices. Local affairs are managed by a Union *panchāyat*.

Bandamūrlanka.—Village in the Amalāpuram *tāluk* of Godāvari District, Madras, situated in 16° 27′ N. and 81° 58′ E., at the mouth of the Vainateyam, a branch of the Godāvari, 12 miles by road from Amalāpuram. It is attached to Komāragiripatnam (population, 5,757). A factory was established here early in the eighteenth century by the East India Company, but was soon abandoned.

Bedadanūru Coal-field.—Bedadanūru is a hamlet in the Polavaram minor *tāluk* of Godāvari District, Madras, situated in 17° 15′ N. and 81° 14′ E., about 10 miles from Jangareddigūdem on the Ellore-Prakkilanka road. It is the centre of a small coal-field, where the Barākar stage of sandstone outcrops over an area of about 5½ square miles. This is the only coal-field lying entirely within the Madras Presidency; but though prospecting has been carried on for some years, no paying seam has as yet been discovered.

Bison Hill.—Hill in the Pāpikonda range, Polavaram minor *tāluk*, Godāvari District, Madras. It is situated on the right

bank of the Godāvari river where it emerges from the gorge. It is about 2,700 feet above the sea. It takes its name from the bison (*gaur*) which frequent the plateau of the Pāpikonda range.

Cocanāda Town (*Kākināda*).—Town and seaport in the *tāluk* of the same name, Godāvari District, Madras, situated in 16° 57′ N. and 82° 14′ E., at the head of Cocanāda Bay, which is formed by the shoals at the mouth of the eastern branch of the Godāvari river. A branch 10 miles long connects the port with the main line of the East Coast Railway at Sāmalkot junction (391 miles from Madras). The population in 1901 was 48,096, of whom 44,787 were Hindus, 2,281 Muhammadans, and 1,022 Christians.

Cocanāda is of little historical importance. Jagannāthapuram, one of its suburbs, was however very early chosen by the Dutch as the site of a factory. It was finally ceded to the British in 1825. After the capture of Masulipatam by Colonel Forde in 1759, the French twice landed a small force at Cocanāda, but were easily repulsed. With the silting up of Coringa Bay Cocanāda took the place of CORINGA as a port, and rose into importance during the American Civil War as a place of shipment for the cotton pressed at GUNTŪR.

The town is situated on a sandy plain, little above sea-level. Two canals from Dowlaishweram, one running through Sāmalkot and the other through the Rāmachandrapuram *tāluk*, fall into the tidal creek on which it stands and connect it with the water-ways of the District. It is the head-quarters of the District administration, though some of the staff are stationed at RĀJAHMUNDRY, and one of the two District Forest officers at Kūnavaram. It is also the head-quarters of a company of the East Coast Rifle Volunteers. The Canadian Baptist Mission have their principal establishment here, and there is a Roman Catholic church and convent.

Cocanāda was constituted a municipality in 1866. The municipal receipts during the ten years ending 1902–3 averaged Rs. 91,000, and the expenditure (including the water-works) Rs. 1,01,000. The income in 1903–4 was Rs. 1,14,000, the principal sources being the taxes on houses and lands (Rs. 27,500), and tolls (Rs. 13,000). The expenditure was Rs. 1,39,000, the chief items being water-works (Rs. 57,000), conservancy (Rs. 19,400), and roads and buildings (Rs. 20,500). There are two hospitals, one, the Victoria Memorial Hospital, which was opened in 1903, being for women. The water-works, completed in 1903 at a cost of $4\frac{1}{4}$ lakhs, are designed to give

a supply of 10 gallons per head per day to a population of 40,000. The water is obtained from the Sāmalkot canal.

Cocanāda is the chief port on the Coromandel coast north of Madras; but since the construction of the railway, and also on account of the silting up of the bay, it has much declined. Vessels calling here anchor 4¾ miles from the entrance to the harbour off the Vakalapūdi lighthouse in 5 fathoms at low water. In 1903–4, 265 vessels with a tonnage of 534,545 entered the port and 265 cleared from it. Of the latter, 38 with a tonnage of 61,611 cleared for foreign ports. The value of the foreign exports was about 84 lakhs, and of the imports 19 lakhs. The coasting trade was valued at about 103 lakhs. The chief exports are cotton, shipped to the United Kingdom, France, and Belgium; oilseeds, chiefly to France and the United Kingdom; and rice, to Ceylon and Mauritius. Tobacco is sent in large quantities to Rangoon, where it is made up into cheroots. *Ghī*, pulses, and castor and gingelly oils are also exported. The principal imports are cotton piece-goods and twist and yarn, which come coastwise from Bombay, gunny-bags from Bengal, rice from Burma, and kerosene oil from America. Cocanāda possesses a Chamber of Commerce and a Port Conservancy Board. The port dues in 1903-4 amounted to Rs. 37,000, and landing and shipping dues to Rs. 20,000. During the year 1903, 23,400 passengers embarked at the port, all for Burma.

A private salt factory is worked at Cocanāda, and important Government salt-pans are situated a few miles off at Penugudūru. A large rice-husking mill has been opened, and several small husking and oil factories are at work. There are also an iron foundry and some small cheroot-making firms. But the principal business of the place is the shipping trade.

The chief educational institution in Cocanāda is the Pithāpuram Rājā's College, founded in 1852, and endowed in 1865 with Rs. 25,000 by the Rājā of that estate. It was raised to a second-grade college in 1884, and has an attendance of 490, of whom 54 are in the college classes. The Timpany Memorial school, founded in 1883 for English-speaking children, and under the management of the Canadian Baptist Mission, has an attendance of 40.

Coringa.—Village in the Cocanāda *tāluk* of Godāvari District, Madras, situated in 16° 48′ N. and 82° 14′ E., at the mouth of the northernmost branch of the Godāvari, 8 miles by road from COCANĀDA. Population (1901), 4,258. Coringa was an early Dutch settlement, and was formerly the principal seaport

on this coast. In 1802 a dock was constructed in which vessels of the Royal Navy could be repaired, and sea-going vessels were also built here. Owing to the silting up of the Godāvari estuary, however, its trade rapidly declined and not a single vessel entered the port during the year 1900-1. In 1881 shipping amounting to 6,717 tons touched here. Shipbuilding is still carried on at the village of Tallarevu close by, and there is a large rice-husking factory at Nīlapalli five miles away. The town suffered severely from the cyclone of 1832, and has twice (in 1787 and 1832) been nearly swept away by tidal waves.

Dowlaishweram.—Town in the Rājahmundry *tāluk* of Godāvari District, Madras, situated in 16° 57′ N. and 81° 47′ E., 5 miles south of Rājahmundry on the Godāvari, at the point of bifurcation of the river where the great anicut (dam) has been constructed across it. Population (1901), 10,304. It is the head-quarters of the Executive Engineers of the central and eastern divisions of the District, and contains large Government workshops. In the neighbourhood are quarries yielding good building stone. The town has been constituted a Union.

Injaram.—Village in the Cocanāda *tāluk* of Godāvari District, Madras, situated in 16° 44′ N. and 82° 11′ E., 5 miles south of Coringa on the Injaram Canal. Population (1901), 2,042. A factory was established here by the East India Company as early as 1708, and the place became famous for its fine cloths. It was captured by the French in 1757, but recovered in 1759, and remained a mercantile station down to 1829. In 1839 it suffered severely from a cyclone.

Mandapeta.—Town in the Rāmachandrapuram *tāluk* of Godāvari District, Madras, situated in 16° 51′ N. and 81° 55′ E. Population (1901), 8,380. Local affairs are managed by a Union *panchāyat*.

Peddāpuram Town.—Head-quarters of the *tāluk* of the same name in Godāvari District, Madras, situated in 17° 5′ N. and 82° 8′ E. Population (1901), 12,609. Peddāpuram was formerly the head-quarters of a large *zamīndāri*; and the ruins of a fort stand on the hill overlooking the town. The place possesses a large weekly market, and a high school maintained by the American Evangelical Lutheran Mission. Local affairs are managed by a Union *panchāyat*.

Pithāpuram Town.—Head-quarters of the *zamīndāri tahsīl* of the same name in Godāvari District, Madras, situated in 17° 7′ N. and 82° 15′ E., 10 miles from Cocanāda by road and 398 miles from Madras by rail. Population (1901), 13,220. The weekly cattle market is an important institution, and there

is a small local industry in the manufacture of bell-metal ware. Pithāpuram with its hamlets constitutes a Union, and the town contains the residence of the *zamīndārs* of the estate of the same name. The principal temple has some inscriptions of importance, and in front of it is a pond called Pada Gayā to which Pithāpuram owes its reputation as a place of pilgrimage.

Rājahmundry Town (*Rājamahendravaram*).—Head-quarters of the *tāluk* and subdivision of the same name in Godāvari District, Madras, situated in 17° 1′ N. and 81° 46′ E., on the left bank of the Godāvari, 360 miles from Madras by the East Coast Railway, which here crosses the river by a girder-bridge of 56 spans, with a total length of 9,000 feet between abutments. The population in 1901 was 36,408, of whom 33,680 were Hindus, 2,073 Muhammadans, and 631 Christians.

The founding of Rājahmundry has been variously ascribed to either the Orissa or the Chālukyan kings, but it was almost certainly founded by the latter. Being the key to the passage of the Godāvari, it at once became a fortress of importance. It passed in turn to the Chola kings and the Ganpatis of Warangal; and Muhammadan influence must have been felt early, as the inscription over the gateway of the principal mosque records its erection in 1324. With the decline of the Warangal power, Rājahmundry came into the possession of the Gajapatis of Orissa. From them in 1470 it was wrested by Muhammad II of the Bahmani line. Not long afterwards, however, the Rājā of Orissa made a determined attempt to regain the lost provinces, and Muhammad's general was besieged in Rājahmundry. He was relieved by the Sultān in person, and the latter remained three years at Rājahmundry settling the country. The place was soon, however, reoccupied by the Gajapatis. In 1512 the great Krishna Deva of Vijayanagar captured the city, but restored it to Orissa. It was not till 1572, after two protracted sieges had failed, that it yielded to the Muhammadans under Rafat Khān. Rājahmundry was Bussy's head-quarters from 1754 to 1757, and it was hither that Conflans' army retreated after its defeat at Condore. The place was taken by the English without any difficulty; but after Forde's departure to attack Masulipatam, the French recaptured it, only to evacuate it almost immediately. Portions of the fort ramparts still remain, giving a picturesque appearance to the town.

Rājahmundry is the head-quarters of the District and Sessions Judge, Superintendent of police, and a Civil Surgeon. One of the seven Central jails of the Presidency is located here. It

was begun in 1864 and is constructed on the radiating principle, with accommodation for 1,052 criminal and thirteen civil prisoners. The articles manufactured in it include carpets, coarse woollen rugs, sandals, and woodwork. The town also contains a museum and public garden. Owing to its favourable position with regard to the main lines of communication in the District, it is an important distributing centre, and the principal dépôt for the timber floated down the river.

Rājahmundry was constituted a municipality in 1866. The municipal income and expenditure during the ten years ending 1902-3 averaged Rs. 44,000 and Rs. 43,000 respectively. In 1903-4 the income was Rs. 48,000, derived principally from the house and land taxes and tolls. The main items of expenditure, which amounted to Rs. 53,000, are conservancy and communications. A municipal hospital has accommodation for 32 in-patients.

The principal educational institution in the town is the first-grade college. Established as a Zila school in 1853, college classes were opened in 1873; in 1877 it was raised to its present grade, and in 1904 had 216 students in the upper classes. The town also contains a teachers' training college, with 103 students; a practising school attached to the training college, with 429 pupils; and a high school managed by the American Evangelical Lutheran Mission, with 295 pupils.

Rampa.—A hilly tract in the Agency of Godāvari District, Madras, lying between 17° 19′ and 17° 49′ N. and 81° 32′ and 81° 58′ E., with an area of about 800 square miles. Commencing about 20 miles from Rājahmundry, the country presents a succession of hills from 2,000 to 4,000 feet high, extending back from the northern bank of the Godāvari almost to the Sileru river. It takes its name from the little village of Rampa, and was originally held as a *jāgīr* by the *mansabdārs* of that place. In 1858, owing to the unpopularity of the *mansabdār*, disturbances broke out which lasted till 1862. A police force was then recruited among the hill-men. In 1879 the Scheduled Districts Act was extended to this tract, and in the same year there took place a second rising called the Rampa rebellion, which involved the employment of troops. It was not finally quelled till 1881, when the leader Chendrayya was killed. The *mansabdār* had been deported early in 1880, and a settlement made with most of the *muttahdārs* in 1879. These latter still hold the greater part of the country, paying a light tribute (*kattubadi*). The most important of them are the *muttahdārs* of Vellamūru and Musarimilli; the

former in particular is much looked up to by the hill-men of the surrounding tracts. The Rampa hill country is now almost entirely included in the minor *tāluk* of Chodavaram. It contains extensive forests; but the shifting cultivation (*podu*) practised throughout this region, to which the Forest Act is not applied, is very destructive. This practice involves burning down the forests, the crop being raised among the ashes. There are only two roads, one 14 miles long and the other 19. A strong police force is maintained at Chodavaram, and a smaller body at Kota. Both stations are stockaded. The inhabitants are principally hill Reddis. The chief products are bamboos and tamarinds.

Sacramento Shoal.—Shoal at the mouth of the Gautami branch of the Godāvari river, off the village of Molletimoga in the Amalāpuram *tāluk* of Godāvari District, Madras, situated in 16° 35′ N. and 82° 14′ E. It is named after the United States steam-frigate *Sacramento*, which went ashore here on June 19, 1867. A lighthouse 148 feet high was erected on the shoal in 1902. It has a light of the third order, showing a white light, one flash every five seconds, visible for 18 miles in clear weather. The object of this is to warn vessels off Point Godāvari and the shoal.

Sāmalkot (*Chāmarlakota*).—Town in the Cocanāda *tāluk* of Godāvari District, Madras, situated in 17° 3′ N. and 82° 10′ E., 7 miles north of Cocanāda, on the main line of the East Coast Railway, 391 miles from Madras, and on the Sāmalkot canal. Sāmalkot is a rapidly growing town in the Pithapuram estate. The population in 1901 was 16,015, compared with 4,961 in 1881. A sugar refinery and distillery, employing 520 hands daily, was opened here in 1899. A Government experimental agricultural farm has also been started. Sāmalkot was formerly a military station, but was abandoned in 1869. Troops were again stationed here from 1879 to 1893.

Tuni Town.—Head-quarters of the *zamīndāri tahsīl* of the same name in Godāvari District, Madras, situated in 17° 22′ N. and 82° 32′ E., on the East Coast Railway, 425 miles from Madras. Population (1901), 8,842. It is a market of local importance.

KISTNA DISTRICT

Kistna District (*Krishna*).—A District on the north-eastern coast of the Madras Presidency, lying between 15° 37′ and 17° 9′ N. and 79° 14′ and 81° 33′ E., with an area of 8,498 square miles[1]. Boundaries, configuration, and hill and river systems.

It is bounded on the east by the Bay of Bengal; on the west by the Nizām's Dominions and Kurnool District; and on the north and south by the Districts of Godāvari and Nellore respectively. It is named after the great river which flows along much of its western boundary, and then, turning sharply, runs right across it from north-west to south-east, and forms its most striking natural feature. On the extreme west the District consists of stony uplands dotted with rocky hills or crossed by low ranges; the centre and north are a level plain of black cotton soil; but the eastern portion is made up of the wide alluvial delta of the Kistna river, an almost flat expanse, covered with irrigated rice-fields, and containing some of the most fertile land in the Presidency. These three tracts form three sharply differentiated natural divisions. The coast is fringed with a wide belt of blown sand, sometimes extending inland for several miles. Along the shore the dunes rise to the height of from 30 to 50 feet. The only hills of any note are those in the west of the District. They are outliers of the great chain of the EASTERN GHĀTS, and the Palnād *tāluk* is almost surrounded by them. Besides the Kistna, there are no rivers, except a few fitful hill torrents and three or four minor tributaries of the great river. The GUNDLAKAMMA, which rises in Kurnool, traverses a corner of the Vinukonda *tāluk* from west to east and then passes into Nellore. The COLAIR LAKE (Kolleru) lies within the District.

Geology. The broad central belt of low-lying country, situated at the foot of the Eastern Ghāts and sloping towards the sea, is

[1] While this work was under preparation the area of the District was changed, the *tāluks* of Ellore, Yernagūdem, Tanuku, Bhīmavaram, and Narasapur (excluding Nagaram Island) being added to it from Godāvari District, and those of Tenāli, Guntūr, Sattanapalle, Palnād, Bāpatla, Narasaraopet, and Vinukonda being formed (with the Ongole *tāluk* of Nellore) into a new Guntūr District. The present article refers to the District as it stood before these alterations.

covered by Archaean gneisses. These consist of a thinner-bedded schistose series (which includes mica and chloritic schists with quartzites), and of more massive granitoid gneisses, all much interbanded and disturbed. They are also pierced by occasional younger dioritic dykes, granite, felsite, and quartz veins. North-west of this Archaean belt comes the more elevated, often plateau-like, country of the Cuddapah and Kurnool series of the Purāna group. This is an enormous series (aggregating over 20,000 feet thick) of unfossiliferous, but little altered, sedimentary strata, gently inclined as a whole. They comprise repetitions of quartzitic and shaly sub-series, with occasional conglomerates and limestones, and with interbedded traps near the base. The Kurnools overlie the Cuddapahs unconformably, forming numerous plateaux, and possess a basal diamantiferous conglomerate. South-east of the Archaean band are a few scattered outliers of the much younger Upper Gondwānas, with plant-beds and Jurassic marine shells, a double sandstone series with shales between; and these in turn underlie a little sub-recent Cuddalore sandstone, and great stretches of coastal and deltaic alluvium with a few patches of lateritic rock.

Botany.

The flora of the District presents no special characteristics, the plants being mainly the usual cultivation weeds of the Coromandel coast. Along the sandy shore are found the usual sand-binders, *Spinifex squarrosus* and *Ipomaea*, and cashew-nut trees (*Anacardium occidentale*) occur in scattered nooks. The principal crops and forest trees are referred to later. Generally speaking, the District is very bare of tree-growth.

Fauna.

Wild animals are far from plentiful. Tigers and *sāmbar* are found in the Palnād and Vinukonda jungles, on the Medasala Durga ridge, and on the Kondapalli and Kondavīd hills. Leopards and an occasional bear lurk in the rocky eminences of some of the inland *tāluks*. A few antelope are to be seen in the Bāpatla *tāluk*, and wild hog are not uncommon in various parts. Bird life is more prominent. Almost every species of South Indian feathered game, except the woodcock and hill partridge, is to be found in the District. Snipe, duck, and teal abound in the season; and the Colair Lake is the home of almost all the known inland aquatic birds. It is also fairly stocked with fish.

Climate and temperature.

The climate of the District, although in parts trying owing to the great heat, may be set down as healthy. Fever is on the whole uncommon. Masulipatam (the head-quarters), with

a mean temperature of 82°, a recorded maximum of 117°, and a minimum of 58°, possesses perhaps the most equable climate; and on the coast generally, except for a short while in the month of May, the heat is never unbearable. The temperature of the Palnād, Sattanapalle, Nandigāma, and Tiruvūr *tāluks* during November, December, and January resembles that of the Mysore plateau, the thermometer falling to 65°; but the temperature becomes extremely high during May and June.

Rainfall.

Of the rainfall nearly two-thirds is usually registered during the south-west monsoon, the first showers of which begin to fall in May. The remainder of the supply is received in the three last months of the year, but the fall in October and November is as a rule much more irregular than in the earlier months. It is at times exceedingly heavy, owing to the cyclones that often visit the coast. The annual rainfall for the District as a whole during the thirty years from 1870 to 1899 averaged 33 inches. But this is not evenly distributed; as elsewhere along this coast, the fall in the coast tracts, such as Masulipatam, Tenāli, and Bāpatla, is considerably heavier than that in the inland *tāluks* of Palnād, Sattanapalle, and Narasaraopet. Scarcity has been known in one or two bad years, but the pinch of real famine has not been felt since the Kistna irrigation system was completed. Floods, however, are frequent. In 1874, 1875, 1882, 1895, 1896, and 1903 they did damage which was sometimes very great. All of them were due to the Kistna overflowing its banks. The highest flood on record in the river was in 1903, when the water breached the bank of the main canal and submerged much of the delta. Masulipatam, the District head-quarters, has twice been visited by disastrous tidal waves. In 1779 the sea flowed 12 feet deep through the Dutch factory, a great part of the town was washed away, and at least 20,000 persons were drowned and lay unburied in the streets. In 1864 an even worse wave inundated the place. The sea penetrated 17 miles inland, submerging 780 square miles and drowning as many as 30,000 people.

History.

The earliest known rulers of the District were the Buddhist dynasty of the Andhras, who built the *stūpa* at AMARĀVATI and whose curious leaden coins are still occasionally found. Following them came, about the beginning of the seventh century A.D., the Brāhmanical Eastern Chālukyas, the excavators of the cave temple at UNDAVALLE and other rock-cut shrines. About A.D. 999 they in their turn were supplanted by the CHOLAS. The latter some two centuries later gave

place to the Ganpatis of Warangal, during whose rule Marco Polo landed in the District at Motupalle, now an obscure fishing-village in the Bāpatla *tāluk*. The District then came under a dual sway, the kings of Orissa ruling the northern part, while the south fell into the hands of a line of cultivators who rose to considerable power and are known to history as the Reddi kings. The ruins of their fortresses at KONDAVĪD, BELLAMKONDA, and KONDAPALLI are still to be seen. In 1515 king Krishna Deva of Vijayanagar wrested the north of the District from the Gajapati kings of Orissa; and it passed, on the fall of the Vijayanagar empire in 1565, to the Kutb Shāhi line of Golconda, and was eventually absorbed (on the destruction of that dynasty in 1687) in the empire of Aurangzeb.

In 1611 the English founded their second settlement in India at Masulipatam, which continued to be their headquarters until these were finally removed to Madras in 1641. Three years after the founding of the English settlement came the Dutch, and in 1669 the French followed. It was not, however, till the year 1750 that any of the European powers exerted any political influence in the District. Two years after that date the Sūbahdār of the Deccan granted the whole of the NORTHERN CIRCĀRS to the French, and it was from them that this tract finally passed to the English. On the outbreak of hostilities in 1758, Colonel Forde, who was sent by Clive from Bengal to attack the French in the Northern Circārs, defeated them at Condore in Godāvari District, and following them into Masulipatam besieged them there. Faced by a strong garrison in front and hemmed in behind by the Sūbahdār of the Deccan, the ally of the French, his ranks rapidly thinning with disease, Forde, as a counsel of despair, at length made an almost desperate night attack upon the Masulipatam fort and captured it. As a consequence of this victory, first the divisions of Masulipatam, Nizāmpatam, and part of Kondavīd, and later the whole of the Circārs, passed, by a grant from the Sūbahdār of the Deccan (confirmed by the emperor Shāh Alam in 1765), to the Company. With the cession of the Palnād in 1801 by the Nawāb of Arcot, the entire District finally became British territory. At first it was administered by a Chief and Council at Masulipatam, but in 1794 Collectors directly responsible to the Board of Revenue were appointed at Guntūr and Masulipatam. In 1859 these two Collectorates (except two *tāluks* of the latter) were amalgamated into one District.

Archaeology. The most interesting archaeological remains in the District are its Buddhist antiquities, and the chief of these is the great

stūpa at Amarāvati in the Sattanapalle *tāluk*. This was discovered in 1796, and a portion of the sculptured marble rails of the processional circle was sent by Sir Walter Elliot to England, where it now lines one of the staircase walls in the British Museum. The Government Museums at Madras and Calcutta contain other pieces of the work. From inscriptions it is evident that the temple of Amareswara in the same village was originally a Buddhist or Jain sanctuary, and in the neighbourhood are several mounds which may perhaps contain other relics of these faiths. In the Tenāli *tāluk* are the ruins of Chandavolu, a place of great antiquity containing a temple and Buddhist mound; and Buddhist *stūpas* exist at Jaggayyapeta and Gudivāda. Gold coins have been found at Chandavolu, and in 1874 some workmen came upon several masses of molten gold as large as bricks. There was formerly a fine Buddhist *stūpa* at Bhattiprolu. Here a curious relic, consisting of a piece of bone (supposed to have been one of Buddha's bones) enclosed in a crystal casket lodged in a soapstone outer case, was found a few years ago. In the Vinukonda *tāluk* stone circles (dolmens) abound and inscriptions are numerous.

The people.

Kistna comprises the thirteen *tāluks* and *tahsīls* of which statistical particulars are given below:—

Taluk or *Tahsīl*.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Bezwāda	422	1	107	124,170	295	+ 16.6	8,189
Tiruvūr	338	...	89	69,219	205	+ 13.3	2,291
Nūzvīd	789	1	231	188,761	240	+ 22.0	7,427
Nandigāma	677	1	169	139,958	206	+ 10.5	5,555
Gudivāda	595	1	212	151,916	256	+ 28.4	6,751
Bandar	740	1	191	214,316	290	+ 8.0	15,440
Guntūr	500	2	109	200,557	402	+ 20.2	13,083
Sattanapalle	714	...	168	159,645	224	+ 15.2	6,803
Tenāli	644	1	150	288,127	448	+ 29.3	12,860
Narasaraopet	713	1	114	168,547	237	+ 7.8	7,270
Palnād	1,041	...	96	153,638	148	+ 8.2	5,979
Vinukonda	646	1	71	82,493	128	+ 0.1	3,741
Bāpatla	679	3	111	213,456	315	+ 1.73	12,050
Total *	8,498	13	1,818	2,154,803	254	+ 16.1	107,439

* The area of the new Kistna District is 5,899 square miles, and its population 1,744,138.

The head-quarters of the Bandar *tāluk* are at Masulipatam, of Nūzvīd at Gannavaram, and of Palnād at Guruzāla. Those of the other ten *tāluks* are at the places from which they are named. The population of the District in 1871 was 1,452,374; in 1881, 1,548,480; in 1891, 1,855,582; and in 1901, 2,154,803. During the last thirty years it has increased by 48 per cent., which, excluding the exceptional case of the Nīlgiris, is the highest rate for any District in the Presidency; and in the decade 1891–1901 its growth was at the rate of 16 per cent., which was more rapid than in any other District. Of the nine *tāluks* in the Presidency which showed the highest rates of increase in that period, four—namely, Tenāli, Gudivāda, Nūzvīd, and Guntūr—are in Kistna. Some of this growth is due to immigration, chiefly from Nellore and Vizagapatam. It is most conspicuous in the delta; but even there, except in Tenāli, the density of the population is still much less than in the neighbouring delta of the Godāvari, and the rates of increase will probably continue to be high in future. The chief towns are the municipalities of MASULIPATAM, BEZWĀDA, and GUNTŪR, while Chīrāla and Tenāli are the two most populous Unions. Of the total population, 1,912,914, or 89 per cent., are Hindus; 132,053, or 6 per cent., Musalmāns; and 101,414, or 5 per cent., Christians. The number of these last almost trebled during the twenty years 1881–1901, and between 1891 and 1901 advanced by nearly 33,000, a larger increase than in any other District. In 1901 Christians formed a higher proportion of the population than in any other District north of Madras.

Five per cent. of the people speak Hindustāni. Telugu is the vernacular of practically all the others, and is the prevailing language in every *tāluk*. A peculiarity of the population is that it comprises fewer females than males, there being 976 of the former to every 1,000 of the latter. This characteristic occurs also in six other Districts which form, with Kistna, a fairly compact block of country in the centre of the Presidency.

Their castes and occupations.

Of the Hindus 97 per cent. belong to Telugu castes. The Kammas (311,000) and Telagas (cultivators, 148,000) are in greater strength than in any other District; as also are the Mādigas (leather-workers, 142,000), the Telugu Brāhmans (106,000), and the Komatis (traders, 81,000). Brāhmans of all classes number nearly 6 per cent. of the total Hindu and Animist population, which is an unusually high proportion. Among other castes which are commoner in Kistna than else-

where may be mentioned the Bogams (dancing-girls), and the three beggar communities of the Bandas, the Budubudukalas, and the Vipravinodis. The latter beg only from Brāhmans, and will only do their juggling tricks, for which they are famous, if some Brāhman be present. Of the Musalmāns, an overwhelming majority returned themselves as Shaikhs, but Pathāns and Saiyids are fairly plentiful, while Mughals are more than twice as numerous as in any other District.

The occupations of the people differ singularly little from the normal. Agriculture, as usual, enormously preponderates.

Christian missions. At the Census of 1901 there were 101,414 Christians in the Kistna District, of whom 100,841 were natives. The most numerous sect is that of the Baptists, 39,027. The Lutheran and allied denominations number 34,877; while the Roman Catholic and Anglican communions are fairly equal in strength, possessing 14,511 and 11,157 members respectively.

The pioneers of Christianity in the District belonged to the Roman Catholic Church, being Jesuits who came out to India after the founding of the well-known mission at Madura. Little is now on record regarding their operations, but it is clear that their efforts were less continuous and strenuous than in Districts farther south. The suppression of the Society of Jesus in 1773 almost entirely checked their enterprise, and for many years few priests were left in the District, and some of the converts went back to Hinduism. In 1874 matters revived, four priests coming out from Mill Hill; and since then more has been done.

The Protestant missions are of much more recent origin. The best known of their missionaries, the Rev. Robert Noble, came to Masulipatam in 1841 under the auspices of the Church Missionary Society, and worked there without intermission for twenty years, founding the college at Masulipatam which bears his name. The American Lutheran Mission was started at Guntūr in 1842. Its converts are chiefly from the lower castes, and it works at Guntūr and Narasaraopet. The Baptists began operations in 1866, but their converts outnumber those of any other denomination.

General agricultural conditions. As has been mentioned, the District consists of three dissimilar areas: namely, the Palnād and the neighbouring tracts, where much of the soil is formed of detritus from the hills; the wide plain of the rest of the uplands, where it is black cotton soil; and the delta, which is for the most part alluvial. Agricultural practice naturally differs according to the soil, the lighter land requiring only slight showers, the cotton country

needing a thorough soaking, and the delta having to wait until the floods come down the river. There are three general classes of crop, corresponding more or less to the seasons: namely, the *punāsa*, or early crops sown just after the first burst of the monsoon in May or June; the *pedda*, or big crop, between July and September; and the *paira*, or late crop, put down in November. The sowing of the 'wet' land is principally done from July to October, by the middle of which month more than four-fifths of it should have been completed.

Chief agricultural statistics and principal crops.

As much as one-fourth of the District consists of *zamīndāri* and *inām* lands. For the former of these no detailed particulars are on record. The area for which accounts are kept is 6,487 square miles, details of which, for 1903-4, are appended:—

Tāluk.	Area shown in accounts.	Forests.	Cultivable waste.	Cultivated.	Irrigated.
Bezwāda	232	50	4	146	33
Nūzvīd	4	...	...	3	2
Nandigāma	437	41	4	346	12
Gudivāda	523	1	114	325	222
Bandar	437	103	129	158	41
Guntūr	497	13	3	413	10
Sattanapalle	715	129	16	484	3
Tenāli	645	45	51	485	315
Narasaraopet	696	45	24	545	9
Palnād	1,041	354	89	502	6
Vinukonda	571	173	44	309	7
Bāpatla	689	47	67	484	117
District total	6,487	1,001	545	4,200	777

The staple crop is rice, which in 1903-4 occupied 860 square miles, or 25 per cent. of the total area under cultivation. This is of two main kinds: white paddy, which is irrigated and transplanted; and black paddy, which grows with the help of rain alone. The latter is found only in two or three Districts besides Kistna, and is largely exported to Jaffna. *Cholam* (*Sorghum vulgare*), which occupied 590 square miles in 1903-4, is the principal 'dry' cereal crop, and next in importance is *cambu* (*Pennisetum typhoideum*). Of industrial crops, cotton, which is chiefly produced in Palnād and Sattanapalle, occupied 377 square miles. The area under indigo has fallen from 180 square miles in 1896-7 to 40 square miles in 1903-4, the decline being attributable to the competition of the synthetic dye. Tobacco, which is largely exported to Burma, was grown on 28,000 acres. Castor occupied 39,000 acres, but the cultivation and trade in this product are gradually falling off.

During the period of thirty-one years from 1872–3 to 1903–4, an increase of 12 per cent. occurred in the extent of holdings. The most noticeable advance was in the 'wet' cultivation, the extent of which has more than doubled; the increase in 'dry' holdings was comparatively small. In point of quality, cultivation has probably receded rather than improved since the introduction of irrigation from the Kistna. The delta ryot finds that he can grow a crop sufficient for his needs with little trouble, and ploughing is done in a perfunctory fashion, while weeding is not necessary under the transplantation system. Little advantage has been taken of the Land Improvement Loans Act, the amount advanced in sixteen years ending 1903–4 being only Rs. 28,000. Most of this was, as usual, spent in digging or repairing wells. Improvements in agricultural practice.

The large extent of pasture in the upland regions affords exceptional facilities for rearing stock. Excellent cattle of the Nellore breed are found in the Palnād, Narasaraopet, and Vinukonda *tāluks*. These animals, though very powerful and useful for heavy draught, are slow, and deteriorate quickly if called on to work where the grass is not as good as in their native places. In the delta the want of fodder is severely felt, and the cattle are generally of poor quality. Sheep are fairly plentiful. They have, as a rule, short, coarse, red or brown hair, and are extremely leggy. Cattle and sheep.

The total area irrigated in the District is 777 square miles, as shown in the table given above. Practically the whole of it is in the delta *tāluks* of Tenāli, Gudivāda, Bāpatla, and Bandar, where it depends upon the Kistna river. Nearly 90 per cent. of the irrigated area is supplied from Government canals, only 7 per cent. from tanks, and only 1½ per cent. from wells. The Kistna irrigation is led from the great dam across the river at Bezwāda, which is 3,714 feet long and rises about 20 feet above the bed of the stream. It was finished in 1854, and feeds the ten main canals which irrigate the delta and branch off into smaller and smaller channels until they cover every part of it. Vast as is the quantity of water utilized by this great system, a large amount of flood-water still runs to waste over the dam; but, as the river is not filled by the rains of the north-east monsoon, there is little water in it at the end of the year, and the area that grows two crops is therefore so small as to be negligible. A project to form an enormous reservoir higher up the river, where it runs between very steep, high banks, has accordingly been investigated; this would not only supplement the supply at the dam at Bezwāda, but would also command Irrigation

large areas in the upland *tāluks* above that dam. It is estimated that by this means the irrigable area might be doubled. Even under existing conditions the value of the irrigated crops is estimated at 215 lakhs annually, the greater part of this representing the value of the rice crop.

Among minor irrigation works may be mentioned a dam built across the Muneru at Polampalli, by which 3,400 acres were watered in 1903-4. A dam has also been constructed across the Palleru at Katchavaram in the Nizām's Dominions, which is at present held on lease by private individuals. All the area supplied from it, which is not very great, lies within British territory. In the uplands irrigation is from tanks, but none of them is of any great size and the area commanded is inconsiderable. A scheme to irrigate 50,000 acres in the Divi Island in the delta by steam pumping has recently been started.

Forests. There is now very little real forest within the limits of the District, although the hills in the Palnād and those to the north-west of Vinukonda are said to have once been covered with trees. The 'reserved' forests cover about 1,000 square miles, of which more than a third is in the Palnād, and much of the remainder in Vinukonda and Sattanapalle. The most noticeable trees are *Pterocarpus*, *Terminalia*, *Anogeissus*, and *Lagerstroemia*. Casuarina has been planted by private enterprise on considerable areas of the sandy wastes along the coast. On the Kondapalli hills is found a light wood known as *ponuku* (*Gyrocarpus Jacquini*), which is used in the manufacture of the well-known Kondapalli toys. In 1903-4 the forest receipts amounted to Rs. 1,49,000, and the working expenses, inclusive of establishment charges, to Rs. 74,000.

Minerals. Except building stones, among which the marble used in the Amarāvati *stūpa* deserves special mention, the District contains few minerals of economic value. Iron occurs in small quantities and was formerly smelted by native methods; and copper used to be found in Vinukonda. The most interesting mining operations which have been conducted were those in search of diamonds, before the country came into British hands. In the sixteenth and seventeenth centuries, when the Sultāns of Golconda ruled over Kistna, this mining was carried on extensively at Malavalli and Gollapalli in the Nūzvīd country, at Kollūr in Sattanapalle, and at Partiāla west of Kondapalli. The first two of these mines were still being worked in 1795 when Dr. Heyne visited the spot. The earliest trustworthy account of the industry is that of Tavernier, the French jeweller, who visited the Kollūr mines in the seventeenth century. He

says that 60,000 men were at work in them; and this would account for the ruins of extensive habitations which are still to be seen on what is now a most desolate spot. He speaks of a great diamond 900 carats in weight being found there and sent to the emperor Aurangzeb. This gem is supposed by some authors to be the famous Koh-i-nūr. The Pitt, or Regent, diamond (now among the French crown jewels) is said in one account to have been found at Partiāla, but Governor Pitt always kept the history of this stone a close secret.

Arts and manufactures. Kistna is of importance from an agricultural rather than an industrial point of view, and the arts and manufactures in it are few. All over the District the weaving of coarse cloth from the wool of sheep and goats is carried on, but the market for the product is purely local. Tape for cots is made in the Palnād and Vinukonda *tāluks.* Rough carpets are manufactured at Vinukonda, and mats at Ainavolu. In former years fine carpets were exported to England from Masulipatam. The price charged by the exporters ranged from Rs. 8 to Rs. 10 per square yard. The industry has now fallen into decay, the few carpets that are made being of very poor quality. A tannery in the town employs about fifty hands and sends out skins to the value of about Rs. 50,000 a year, while in a rice mill some twenty to thirty persons are engaged. The silk-weaving industry of Jaggayyapeta was once flourishing, but has fallen off in late years, trade now following the line of the Nizām's Railway. The weavers (who number about fifty families) obtain raw silk from Mysore and dye it themselves. An inferior description of cloth for women's *sārīs* is largely exported to Ellore and surrounding towns.

At Bezwāda the Public Works department workshops employ a daily average of about 180 hands, the maximum rising to 300. At Guntūr there are three steam cotton-presses and two hand presses, each employing from twenty-five to thirty hands. A fourth steam press is about to be erected. Five cotton-ginning factories in the town employ about 150 persons, and there are seven ginning factories in other parts of the District. At Kondapalli, toys are largely manufactured from a specially light wood (*Gyrocarpus Jacquini*) found on the hills. Paper used to be made at Kondavīd, but the industry has practically died out since 1857, when the Government offices ceased to use the paper.

Commerce. Kistna possesses two ports, Masulipatam and Nizāmpatam. The latter is unimportant, and the trade of the former has declined since the opening of the railway from Hyderābād to

Bombay made that city the port for the Nizām's Dominions. The completion of through railway connexion between Madras and Calcutta was a further blow; nor has Masulipatam ever fully recovered from the effects of the great inundation of 1864. The projected railway from Bezwāda to Masulipatam may revive its trade to some extent; but the port cannot be called a good one, large ships being unable to approach within five miles of the shore. In 1903–4 its exports were valued at Rs. 11,85,000 and its imports at Rs. 7,57,000. A large proportion both of the export and the import trade was with foreign countries. Of the former, goods to the value of Rs. 8,17,000 (mainly rice) were sent thither, and of the latter merchandise valued at Rs. 5,48,000 came from that source, the largest item being European piece-goods.

Cotton is the main export from the District by rail. In 1900–1 the presses at Guntūr sent 19,000 bales (of 400 lb. each) of cotton to Cocanāda and Madras, of a value ranging from Rs. 66 to Rs. 48 per 250 lb. In the following year 29,000 bales were dispatched, but the highest price obtainable was Rs. 50 and the lowest Rs. 44⅓. The largest total of any year during the period 1882–1902 was that of 1899–1900, when 39,000 bales were sent out; and the smallest that of 1886–7, namely 17,408 bales. This cotton consists of two grades, known in the market as fair red and machine-ginned red Cocanāda. It is especially suitable for manufacture into dyed fabrics, its natural colour taking the dye more easily than the white variety. In addition to its use for weaving, it finds a market for making string, &c.

In 1901 the East Coast Railway carried from Bezwāda 27,500 tons of rice, principally to Madras City and stations along the Madras and South Indian Railways. Bezwāda does a large trade in hides and skins, the sales of which amount at times to a thousand per day. Practically all of these are first roughly dressed with salt and then sent to Madras. Other exports of the District are castor-seeds, chillies, and tobacco; and among imports are jaggery (coarse sugar), refined sugar and spirits from the Sāmalkot distillery, piece-goods from Madras, and kerosene oil from the same town and from Cocanāda. The chief mercantile caste are the Komatis, but the skin trade of Bezwāda is carried on, as elsewhere, by the Labbais, a mixed race of Musalmāns.

Railways and roads. The most important ailway in the District is the East Coast line of the Madras Railway (standard gauge), which enters it from Nellore at its southern corner at Chinna Ganjām, runs through it in a north-easterly direction for 93½ miles, and

then passes on into Godāvari. The section from Nellore to Kistna Canal junction was opened in 1897, that on to Bezwāda in 1898, and that from Bezwāda to Kovvūr in 1893. It crosses the Kistna river just below the anicut on a girder-bridge of twelve spans of 300 feet each. Bezwāda is also the terminus of the Nizām's Guaranteed State Railway and of the Southern Mahratta Railway. The former line, which was opened in 1889, crosses the District frontier at Gangineni, 21½ miles from Bezwāda. It is also on the standard gauge. The section of the Southern Mahratta Railway (metre gauge) from Cumbum to Tadepalli was opened in 1889, and that from Tadepalli to Bezwāda in 1894. The length of the line within the District is 79 miles. Lines have been projected from Bezwāda to Masulipatam, from Guntūr to Repalle via Tenāli, and from Phirangipuram on the Southern Mahratta Railway to Guruzāla, by way of Sattanapalle.

The length of the metalled roads is 709 miles, and of unmetalled roads 449 miles. With the exception of 22 miles of the latter, which are under the charge of the Public Works department, all are maintained by the local boards. There are avenues of trees along 694 miles. On the eastern side of the Kistna river the two chief roads are that from Masulipatam to the Hyderābād frontier via Bezwāda and Nandigāma, and that from Masulipatam to Nūzvīd via Gudivāda; and these are connected by various branches, partly metalled and partly not. On the western side of the river there are five principal lines, chief of which is the great northern road which runs from Sītānagaram to Madras via Guntūr and Chilkalūrpet. The southern portion of this part of the District, including portions of the Tenāli and Bāpatla *tāluks*, is badly in need of metalled roads, and attempts are being made to remedy this defect.

Since the District came into British hands only one serious famine has been recorded, in 1833. This affected other areas also, but is known as the Guntūr famine in consequence of its severity in the old Guntūr District, which formerly occupied the south of the Kistna District. There 150,000 persons were estimated to have died from want, and the loss of revenue was very great in 1833 and the succeeding years. In the great famine of 1876–8 Kistna suffered but little in comparison with tracts farther south. The average number of persons on relief was only about 5,000. Including remissions of revenue, the distress cost the state 7½ lakhs. Since the irrigation system from the Kistna was completed, the delta has not only been free from famine itself but has supplied other

Famine.

Districts with its surplus grain. In the upland tract, however, severe distress may still be caused locally by the failure of the seasonal rains. In 1900 a few relief works were opened in the Vinukonda and Narasaraopet *tāluks*, but no serious scarcity occurred.

District subdivisions and staff.

For purposes of administration Kistna is divided into four subdivisions: namely, Guntūr, Bezwāda, Narasaraopet, and Masulipatam [1]. Of these, the two former, which comprise respectively the Guntūr, Bāpatla, Tenāli, and Sattanapalle *tāluks* and the Bezwāda, Nūzvīd, Nandigāma, and Tiruvūr *tāluks*, are ordinarily in the charge of Covenanted Civilians. Narasaraopet, which is made up of the Vinukonda, Narasaraopet, and Palnād *tāluks*, is under a Deputy-Collector; and the Masulipatam subdivision, which contains the head-quarters of the District and the residence of the Collector, and comprises the Bandar and Gudivāda *tāluks*, is also under a Deputy-Collector. There is a *tahsīldār* at the head-quarters of each *tāluk* with the exception of Tiruvūr, where a deputy-*tahsīldār* is posted; and, except at Tiruvūr, Vinukonda, and Nandigāma, there is a stationary sub-magistrate at each of these stations. Deputy-*tahsīldārs* are also stationed at Repalle, Ponnūru, Mangalagiri, Macherla, Kaikalūr, Avanigedda, and Jaggayyapeta. The superior staff of the District consists of the usual officers, but in addition to the District Medical and Sanitary officer (whose head-quarters are at Masulipatam) a Civil Surgeon is stationed at Guntūr.

Civil justice and crime.

Civil justice is administered by seven District Munsifs, stationed at Tenāli, Guntūr, Bāpatla, Narasaraopet, Gudivāda, Masulipatam, and Bezwāda; a Sub-Judge at Masulipatam; and the District Court at the same place. The District, especially the Bezwāda subdivision, abounds in *zamīndāris*, and consequently the number of rent suits is large. House-breaking, ordinary theft, and cattle theft are the commonest offences, but Kistna is not in any way notoriously criminal. Dacoities are perhaps somewhat more numerous than in the adjoining Districts. In 1901, at Jaggarlamūdi in the Bāpatla *tāluk*, more than a lakh of rupees worth of property (chiefly cash) was stolen from the house of a Komati woman by a large gang of robbers. Crime is largely the work of the wandering gangs of criminal tribes, which consist chiefly of Kuravans and Lambādis. Latterly scarcity has prevailed for a number of

[1] Since the limits of the District were altered (see p. 299), the number of subdivisions is now five—Ellore, Bezwāda, Narasapur, Gudivāda, and Masulipatam—as shown in the several articles on them below.

years in Hyderābād territory, and this has had the effect of driving a number of bad characters from that State into British territory.

Our knowledge of the system of revenue administration followed by the Hindu rulers of the country before the Muhammadan conquest is very limited. Then, as now, there was a headman in each village to collect, and an accountant to record, the items of revenue, but how the assessments were calculated is obscure. Under the Muhammadans, who acquired the country in the sixteenth century, the revenues of the country were at first for the most part collected and accounted for by Hindu officials, save in the case of the *haveli* land, or tracts in the neighbourhood of military posts intended for the maintenance of troops and Muhammadan officers. When the Muhammadan rule became lax, these Hindu officials, whose posts were usually hereditary, began to call themselves *zamīndārs* and to act as if they were independent princes, and in the course of time they compounded the revenue demand against their respective charges for a fixed sum. The Company's officers, who found these *zamīndārs* in possession when they took over the country, fell into the mistake of regarding them as holders of feudatory estates, paying a tribute to their suzerain, and furnishing troops in times of war. They left them undisturbed, and much mismanagement and oppression resulted.

Land revenue administration.

In 1802, when the permanent settlement was introduced into the District, the *peshkash* or amount to be paid by each *zamīndār* was fixed at two-thirds of half the gross profits of the lands, this half being supposed to be the share paid them by the cultivators. The *haveli* land was divided into estates, which were sold and similarly brought under the permanent settlement. The Palnād *tāluk*, which, as has been mentioned above, was not acquired till later, was treated differently, the villages being rented out for terms of years until 1820, when this system gave place to a partial *ryotwāri* settlement.

The *zamīndāri* system proved an utter failure; extravagance and litigation on the part of the *zamīndārs*, and in some cases the fixing of the *peshkash* at too high a figure, led first to the Collector being compelled to assume the management of many of the estates, and then to these being sold and bought in by Government. By 1850 the greater portion of the country was no longer under *zamīndāri* tenure. In the estates in the south of the District four different revenue systems obtained: namely, (1) *ijāra*, or rent by auction; (2) *makta*, or fixed village rents; (3) the sharing system; and (4) a system partly *makta* and

partly sharing. The endeavours of Government were directed towards the extension to all parts of the *makta* system, by which the village demand was fixed on a consideration of the average collections of former years, the ryots themselves arranging the proportion of the total demand that each should bear. The result, as might have been expected, was unsatisfactory and the country deteriorated. In 1857 the *ryotwāri* system, which had already been adopted in Palnād, was introduced in a partial fashion for the 'dry' lands in the southern portion of the District. Between 1866 and 1874 a systematic survey and a settlement were made, and the *ryotwāri* tenure brought into force in all Government land. The survey showed that the areas of the holdings were understated in the accounts by 7 per cent., and the settlement enhanced the revenue by 16 per cent. The settlement in the southern half of the District is now under revision. In this the 'dry' rates vary at present from 4 annas to Rs. 4-4-0 per acre, and the 'wet' rates from Rs. 1-12-0 to Rs. 7-8-0, a uniform water rate of Rs. 5 per acre being charged in addition. The average assessment here on 'dry' land is Rs. 2 and on 'wet' land Rs. 5 per acre. In the northern half of the District the average assessments are respectively Rs. 1-4-0 and Rs. 4 per acre.

The revenue from land and the total revenue in recent years are given below, in thousands of rupees:—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . .	49,37	59,50	75,94	67,34
Total revenue .	55,35	69,53	95,15	95,06

Owing to territorial changes, the land revenue demand is now about Rs. 65,70,000.

Local boards.

There are three municipalities in the District: namely, Guntūr and Masulipatam, both established in 1866, and Bezwāda, in 1888. Outside these towns local affairs are managed by the District board and the four *tāluk* boards of Masulipatam, Guntūr, Bezwāda, and Narasaraopet, the areas in charge of which correspond with those of the revenue subdivisions above mentioned. The total expenditure of these bodies in 1903-4 was Rs. 7,81,000, much of which was devoted to the maintenance and construction of roads and buildings. The chief source of income is the land cess. The local affairs of twenty-five smaller towns are managed by Unions established under Act V of 1884. Ten of these Unions are within the

limits of the Guntūr subdivision, while Bezwāda contains six, Masulipatam five, and Narasaraopet four.

Police and jails.

The District Superintendent of police has his head-quarters at Masulipatam, and an Assistant Superintendent is stationed at Guntūr. There are 84 police stations, and the number of constables is 970, working under 16 inspectors. The reserve police at Masulipatam consists of 85 constables and 9 head constables. The total strength of the force is 1,107. The number of *talaiyāris*, or rural police, is now 1,628; but it is proposed to reduce them to 1,478 at the forthcoming revision of the village establishments.

Kistna contains no District jail, convicts being sent to the Central jail at Rājahmundry; but there are twenty subsidiary jails, with accommodation for 341 prisoners.

Education.

The Census of 1901 showed that 9·2 per cent. of the males and 0·7 per cent. of the females of Kistna were able to read and write. Of the total population 5 per cent. possessed this accomplishment, and the District takes the thirteenth place in the Presidency in the literacy of its people. Education is most widely diffused in Bandar, the head-quarters *tāluk*, and in Guntūr. The actual number of educated persons in Vinukonda and Tiruvūr is small, but in proportion to the population the percentage is not lower than in the other *tāluks*. In 1880–1 the total number of pupils under instruction in the District was 16,536; in 1890–1, 36,735; in 1900-1, 46,837; and in 1903–4, 54,181, of whom 10,346 were girls. On March 31, 1904, there were in the District 1,895 educational institutions, of which 1,628 were classed as public and 267 as private. Of the former, 1,586 were primary schools, secondary schools numbering 31, and training and other special schools 9. There was an Arts college at Masulipatam and another at Guntūr. Nineteen schools were under the control of Government, the municipalities and the local boards managing respectively 22 and 242. Aid from public funds was granted to 817 schools, while 528 were unaided but conformed to the rules of the department. Of the boys of school-going age on March 31, 1904, 22 per cent. were receiving primary instruction; and of the girls of similar age 6 per cent. For Musalmāns alone the corresponding percentages were 42 and 12 respectively. In the same year 5,309 Panchama scholars were receiving instruction in 584 schools specially kept up for them. The total expenditure on education in the District in 1903–4 amounted to Rs. 3,36,000, of which Rs. 1,14,000 was derived from fees. Of the total, Rs. 2,07,000 was devoted to primary instruction.

Hospitals and dispensaries.

Kistna possesses 14 hospitals and 8 dispensaries. With the exception of the hospitals at Bezwāda, Masulipatam, and Guntūr, and the dispensary for women and children at Masulipatam, which are municipal undertakings, all these institutions are supported from Local funds. Accommodation is provided for 148 in-patients, and in 1903 there were 1,793 such cases, the average daily number in hospital being 80. Counting both in- and out-patients, the number of persons treated was 257,494, and the number of operations performed was 6,990. The total expenditure was Rs. 56,000, of which practically the whole was defrayed from Local and municipal funds.

Vaccination.

In 1903–4 the number of persons successfully vaccinated was 23 per 1,000 of the population, the mean for the Presidency being 30. Vaccination is compulsory in the three municipalities, and has been made so in seven Unions since the beginning of 1903.

[For further particulars, see the *Manual of the Kistna District*, by Gordon Mackenzie (1883).]

Ellore Subdivision.—Subdivision of Kistna District, Madras, consisting of the ELLORE and YERNAGŪDEM *tāluks*.

Ellore Tāluk.—*Tāluk* on the northern border of Kistna District, Madras, lying between 16° 34′ and 17° 13′ N. and 80° 53′ and 81° 24′ E., with an area of 778 square miles. The population in 1901 was 181,035, compared with 171,985 in 1891. It contains one town, ELLORE (population, 33,521), the head-quarters; and 206 villages. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 4,69,000. The *tāluk* is sparsely populated; for, although the southern part of it lies within the influence of the irrigation systems of the Kistna and Godāvari rivers, the northern and greater portion is covered with hills and jungle. On the south the *tāluk* borders the COLAIR LAKE. Two small streams, the Tammileru and Ramileru, run through it, and are used to a certain extent for irrigation.

Yernagūdem Tāluk.—Upland *tāluk* in Kistna District, Madras, lying between 16° 48′ and 17° 19′ N. and 81° 3′ and 81° 45′ E., on the right bank of the Godāvari river, with an area of 568 square miles. The population in 1901 was 140,048, compared with 136,209 in 1891. The number of villages is 115, of which Kovvūr is the head-quarters. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 2,89,000. To the south, and where it approaches the Godāvari river, the ountry is flat, but elsewhere it is uneven, rocky, and covered

with much low jungle. The more northern portions are malarious. The Yerrakālva, a small river running through the centre of the *tāluk*, is the principal source of irrigation. The chief crops are rice, *cholam*, pulses, and oilseeds.

Bezwāda Subdivision.—Subdivision of Kistna District, Madras, consisting of the *tāluks* of BEZWĀDA, NANDIGĀMA, NŪZVĪD, and the *zamīndāri tahsīl* of TIRUVŪR.

Bezwāda Tāluk.—*Tāluk* of Kistna District, Madras, lying between 16° 18′ and 16° 44′ N. and 80° 21′ and 80° 52′ E., on the left bank of the Kistna river, with an area of 422 square miles. The population in 1901 was 124,170, compared with 106,477 in 1891. BEZWĀDA (population, 24,224) is the head-quarters and a municipal town, and there are 107 villages. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 3,15,000. The *tāluk* includes the Kondapalli hills, but most of it is a flat expanse of black cotton soil. Good main roads lead towards Hyderābād, Ellore, and Masulipatam, but communication with the two latter places during nine months in the year is principally by the main canals of the Kistna irrigation system. The country is liable to floods, owing to the freshes which come down this river. The highest flood on record was that of 1903, when the river embankment gave way and Bezwāda town and part of the *tāluk* were submerged.

Tiruvūr Tahsīl.—*Zamīndāri tahsīl* in Kistna District, Madras, lying between 16° 50′ and 17° 9′ E. and 80° 32′ and 80° 52′ E., with an area of 338 square miles. The population in 1901 was 69,219, compared with 61,118 in 1891. Besides Tiruvūr, the head-quarters, there are 88 villages. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 36,000. The *tahsīl* is an inaccessible part of the District, and means of communication are few. The whole of it is composed of *zamīndāri* estates. The cultivation is mainly 'dry,' a little irrigation being afforded by a few small tanks.

Nūzvīd Tāluk.—*Tāluk* in Kistna District, Madras, lying between 16° 13′ and 17° 4′ N. and 80° 39′ and 81° 3′ E., with an area of 789 square miles. The whole of it was originally a single *zamīndāri* estate, which by a decree of the Privy Council was divided into eight portions. The population in 1901 was 188,761, compared with 153,628 in 1891. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 5,72,000. The head-quarters are at Gannavaram, and there are 230 other villages, besides the town of NŪZVĪD (population, 9,015). The Ellore canal cuts the *tāluk* into two divisions,

the eastern being composed chiefly of deltaic lands, and the western traversed by low hills and jungle. There is some irrigation from tanks, and the *tāluk* contains the largest of these sources in the District, the Brahmayyalingam Lake.

Nandigāma Tāluk.—*Tāluk* in the west of Kistna District, Madras, lying between 16° 36′ and 17° 3′ N. and 80° 1′ and 80° 32′ E., with an area of 677 square miles. It includes the two detached *zamīndāris* of Munagala and Lingagiri within the Nizām's Dominions. The population in 1901 was 139,958, compared with 126,701 in 1891. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 3,28,000. It contains one town, JAGGAYYAPETA (population, 8,432), and 169 villages; and the head-quarters are at the village after which it is named. The Muneru, with its tributary the Vareru, and the Palleru flow from the north through the *tāluk* into the Kistna.

Narasapur Subdivision.—Subdivision of Kistna District, Madras, consisting of the NARASAPUR, TANUKU, and BHĪMAVARAM *tāluks*.

Narasapur Tāluk.—Coast *tāluk* of Kistna District, Madras, lying between 16° 19′ and 16° 39′ N. and 81° 27′ and 81° 57′ E., which till recently included the large NAGARAM ISLAND since transferred to Godāvari District. Its present area is 296 square miles. The population in 1901 was 151,342, compared with 136,064 in 1891. It contains three towns, NARASAPUR (population, 10,279), the head-quarters, PĀLAKOLLU (10,848), and ACHĀNTA (8,382); and 78 villages. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 10,22,000. The *tāluk* is very fertile. The chief crops are rice and garden and orchard produce.

Tanuku Tāluk.—Delta *tāluk* of Kistna District, Madras, lying between 16° 35′ and 16° 59′ N. and 81° 23′ and 81° 50′ E., with an area of 371 square miles. The population in 1901 was 238,758, compared with 204,048 in 1891. It contains 174 villages, of which Tanuku is the head-quarters. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 11,79,000. The *tāluk* is very fertile, and is commanded by the irrigation system from the Godāvari river. Nidadavolu, at the end of the main canal and on the railway, contains a large rice factory. The chief crops are rice, other cereals, oilseeds, and sugar-cane.

Bhīmavaram Tāluk.—Inland *tāluk* of Kistna District, Madras, lying between 16° 25′ and 16° 47′ N. and 81° 19′ and 81° 43′ E., in the delta of the Godāvari. Area, 325 square miles; population (1901), 144,615, compared with 121,994 in

1891. It contains 134 villages, of which Bhīmavaram is the head-quarters. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 7,69,000. At Undi, in the centre of the *tāluk*, coarse woollen blankets are woven. Rice is almost the only crop.

Gudivāda.—Subdivision and *tāluk* of Kistna District, Madras, lying between 16° 16′ and 16° 47′ N. and 80° 55′ and 81° 23′ E., and comprising within its limits the greater part of that curious depression between the alluvial deposits of the KISTNA and GODĀVARI rivers which is known as the COLAIR LAKE. It has an area of 595 square miles. The population in 1901 was 151,916, compared with 118,310 in 1891. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 10,19,000. Most of the *tāluk* is under cultivation, being irrigated from the canals of the Kistna system. GUDIVĀDA, the head-quarters, is a Union with a population of 6,719, and there are 212 other villages. A deputy-*tahsīldār* is stationed at Kaikalūr on the southern edge of the Colair Lake.

Masulipatam Subdivision.—Subdivision of Kistna District, Madras, consisting of the BANDAR *tāluk*.

Bandar Tāluk.—*Tāluk* of Kistna District, Madras, lying between 15° 45′ and 16° 26′ N. and 80° 48′ and 81° 33′ E. Area, 740 square miles; population (1901), 214,316, compared with 198,384 in 1891; demand on account of land revenue and cesses (1903–4), Rs. 6,45,000. The name is derived from *bandar* = 'port,' the popular appellation of MASULIPATAM (population, 39,507), the capital of the District and head-quarters of the *tāluk*. The *tāluk* also contains 191 villages. It extends from the Kistna embouchure (including the fertile island of Divi) past Masulipatam along the coast to the north. Much of this country is uncultivated, probably because of the injury done to the soil by the inundation of the sea in 1864, and consists of sandy wastes interspersed with swamps. The climate is the most equable in the District, the great heat of the summer months being tempered by sea-breezes.

Achānta.—Town in the Narasapur *tāluk* of Kistna District, Madras, situated in 16° 36′ N. and 81° 49′ E. Population (1891), 8,382. It has been constituted a Union.

Bezwāda Town.—Town in Kistna District, Madras, situated in 16° 31′ N. and 80° 37′ E., on the northern bank of the Kistna river, and at the foot of a low range of hills. It is the head-quarters of the *tāluk* and subdivision of the same name, the central point on which all the communications of

the District converge, and the site of the great anicut (dam) across the Kistna river. From it are led off the water-ways that traverse the delta and connect the District with Nellore, Madras, and Godāvari. Railways running to Madras, Calcutta, the Nizām's Dominions, and the Ceded Districts meet at Bezwāda. Through the town passes the high road from Masulipātam to Hyderābād, while from the opposite bank of the river runs the great northern road from Madras via Guntūr. The East Coast line of the Madras Railway enters the town over a girder-bridge three-quarters of a mile long; and a telegraph wire that crosses the river from Bezwāda to Sītānagaram is the longest single span of such wire in the world, being over 5,000 feet in a straight line from support to support.

Bezwāda had a population in 1901 of 24,224 (Hindus, 20,377; Musalmāns, 3,194; and Christians, 605), a remarkable increase upon the total for 1881, which was only 9,336. It was constituted a municipality in 1888. The municipal revenue and expenditure during the ten years ending 1902-3 averaged Rs. 43,000. In 1903-4 the revenue and expenditure was Rs. 48,000, the chief sources of income being taxes on houses and lands and tolls. A scheme for supplying the town with water has been considered and dropped. Bezwāda is the head-quarters of several of the engineers of the Public Works department in charge of the delta irrigation works, and contains a high school managed by the Church Missionary Society. It possesses a considerable internal trade; and, from its position at the head of the canal system, it is a place of transhipment through which goods pass to and from different parts of the Godāvari District.

From an antiquarian point of view, Bezwāda is of some interest. Attempts have been made to identify it with the place at which the Chinese pilgrim Hiuen Tsiang, who visited India in the seventh century A.D., resided for some months in a Buddhist monastery. The foundation for this belief rests on the view that the cuttings on the hills overhanging the town on the west mark the site of the monasteries he mentions. The authorities, however, are not agreed on this point; Dr. Burgess, who examined the spot in 1881, holds that these cuttings are nothing more than old quarries. It is a significant fact that Hiuen Tsiang in his narrative makes no mention of the Kistna, which he could hardly have failed to do had the place he describes been on the site of the modern Bezwāda. Not far from the town on the south side of the river are situated the famous cave shrines of UNDAVALLE. In

the seventeenth century Akanna and Madanna, ministers of Abul Hasan, the last of the Kutb Shāhi dynasty of Golconda, fixed their head-quarters at Bezwāda, perhaps with a view to being as far as possible out of the reach of the Mughal emperor. There is a popular legend to the effect that from the Telegraph Hill above the town a subterranean passage led to Hyderābād, by which the ministers could perform the journey to court and back in a single day.

Divi Point.—A low headland in the Bandar *tāluk* of Kistna District, Madras, situated in 15° 58′ N. and 81° 10′ E., at the mouth of one of the branches of the Kistna river, and surrounded by shoals for six miles south and east. The lighthouse formerly situated on it has now been removed to Point Havelock.

Ellore Town.—Head-quarters of the subdivision and *tāluk* of the same name in Kistna District, Madras, situated in 16° 43′ N. and 81° 7′ E., on the East Coast Railway, 304 miles from Madras, and at the junction of canals from the Godāvari and Kistna rivers. The population in 1901 was 33,521, of whom Hindus numbered 29,098, Muhammadans 3,977, and Christians 443.

About 8 miles north of Ellore, at Pedda Vegi, are extensive remains which are supposed to mark the site of the capital of the Buddhist kingdom of Vengi. After overrunning the country in 1470, the Muhammadans drew upon the ruins of the old city for materials for their fort at Ellore. The town was afterwards taken from the Gajapati kings of Orissa by Krishna Deva of Vijayanagar in 1515, but was recovered by the Kutb Shāhi Sultān of Golconda. His lieutenant then withstood a prolonged siege by the Hindu chieftains from north of the Godāvari. With the fall of Rājahmundry in 1572 Ellore became the capital of the *Sarkār* of the same name; and its history is thenceforward uneventful. It was for some time a cantonment for the Company's troops, but was early abandoned.

Ellore is situated on the border of the swamps round the Colair Lake, and its climate is excessively hot. It is the chief market for the surrounding country, and has a large trade in grain. There are two tanneries near the town and a rice factory. Saltpetre, manufactured on a small scale in the neighbouring villages, is refined here. In the suburb of Tangellamūdi, separated from Ellore by a stream called the Tammileru, the noted Ellore carpets are made. This industry, a very old one, is carried on solely by Muhammadans,

Although it is now principally confined to cheap carpets of foreign design for export, well-woven carpets of old patterns can still be obtained. Both wool and dyes are prepared locally.

Ellore was constituted a municipality in 1866. During the ten years ending 1902–3 the municipal receipts and expenditure averaged Rs. 33,000 and Rs. 36,000 respectively. The income in 1903–4 was Rs. 48,000, derived principally from the taxes on houses and lands (Rs. 15,000) and tolls (Rs. 11,000); the expenditure was Rs. 49,000, of which the main items were conservancy (Rs. 11,000) and roads (Rs. 12,000). A municipal hospital is maintained, in which there are 24 beds for in-patients. The principal educational institution is the Church of England Mission's high school, founded in 1854 on the model of that at Masulipatam, to which a primary class is attached. The two together have an attendance of about 400. There is also a branch of the Church of England Zanāna Mission.

Gudivāda Town.—Head-quarters of the *tāluk* of the same name in Kistna District, Madras, situated in 16° 27′ N. and 81° E. Population (1901), 6,719. It is a place of great antiquity. A ruined Buddhist *stūpa* is to be seen in the middle of it, in which four caskets are said to have been found. To the west is a fine Jain statue in good preservation. Farther west is a mound, the old site of the town. Here massive pottery, beads of all kinds in metals, stone, and glass, and Andhra lead coins have been found.

Guntupalli.—Hamlet in the Ellore *tāluk* of Kistna District, Madras, situated in 17° N. and 81° 8′ E., 24 miles north of Ellore town. Population (1901), 1,092. On the western side of a small ravine running up into a low group of hills are extensive rock-cut Buddhist remains. These consist of a *chaitya* cave, a circular chamber with a simple façade containing a *dāgaba* cut in the solid rock, and several sets of *vihāra* caves with entrance halls and chambers on each side. On the ridge shutting in the ravine are a series of cut stone *dāgabas*, and a brick *stūpa* in fair preservation. The date of these remains is placed at about 100 B.C. The *chaitya* cave is still resorted to as a place of pilgrimage. Local tradition asserts that there was formerly a town called Jainapuram on the site of Guntupalli.

Jaggayyapeta.—Town in the Nandigāma *tāluk* of Kistna District, Madras, situated in 16° 54′ N. and 80° 7′ E. Population (1901), 8,432. It is a dépôt for much of the commerce

which passes between the Northern Circārs and the Nizām's Dominions, and possesses a small silk-weaving industry. The place was formerly called Betavolu, but a local chief, who enclosed it with a wall and invited merchants to settle there, named it, after his father, Jaggayyapeta. Near by was discovered in the last quarter of the last century a Buddhist *stūpa*, 66 feet in diameter and surrounded with marble sculptures.

Kondapalli.—Town and hill-fortress in the Bezwāda *tāluk* of Kistna District, Madras, situated in 16° 37′ N. and 80° 33′ E. Population (1901), 4,799. The place is now unimportant, but was formerly a fortress of considerable strength and the capital of one of the five NORTHERN CIRCĀRS. Built about A.D. 1360 by the Reddi kings of KONDAVĪD, it became the centre of numerous struggles. It was taken by the Bahmani Sultān in 1471 from the Orissa kings, and in 1477 from a revolted garrison. Falling once more into the hands of the Orissa kings, it was again captured by Krishna Deva of Vijayanagar about 1515, and by Sultān Kuli Kutb Shāh in 1531. It surrendered to the troops of Aurangzeb in 1687, and in 1766 was taken by General Caillaud from the Nizām. A small British garrison was stationed here till 1859. The ruined outworks, some miles in circumference, are now overgrown with jungle or covered with corn-fields; but the citadel on the rock overhanging them is still a striking object. At Kondapalli there is a special industry—the manufacture of small figures and toys from a light wood which grows on the hills.

Madapollam (*Mādhavāyapālem* or *Mādhavapollem*).—Suburb of NARASAPUR in Kistna District, Madras, situated in 16° 26′ N. and 81° 42′ E. It was an important factory in the early days of the East India Company, which gave its name to a class of cotton goods still known as Madapollams. The encroachments of the river Godāvari, which here makes a sharp bend towards the south, have now greatly eroded the site of the old settlement.

Masulipatam Town (in Hindustāni *Machhlīpatan* = 'fish-town'; popularly known as Bandar = 'the port').—Head-quarters of the Kistna District, Madras, situated in 16° 11′ N. and 81° 8′ E., on the Bay of Bengal, 215 miles north of Madras City. The town is made up of three parts: the fort, the native quarter, and the European quarter. Of these the fort, which is situated close to the sea, is now little more than a memory. The barracks and arsenal, which fell into decay after the withdrawal of troops (first in 1834 and finally in 1864), have

now been pulled down; the churches are in ruins, and the private houses that formerly stood here were destroyed by the great cyclone of 1864. Round the fort stretches a vast expanse of waste land, swamp during the rainy season but firmer in summer, over which a causeway about two miles in length, running in a westerly direction, leads to the native town. In this part of Masulipatam it is still possible to distinguish the separate stations of the various nationalities which traded here centuries ago. French-pettah, occupying a space of about 1,300 square yards, the ownership of which (though not the sovereignty) is vested in the French Government, and English-pālem are here; while some distance to the north-west lies Valanda-pālem (Hollander-town) with the old Dutch grave-yard. Close at hand is the former council chamber of the Netherlands East India Company, now used as a court-house. North of the native quarter along a sand ridge are built the houses of the European residents.

Unless the railway recently sanctioned from Bezwāda should revive its commercial importance by connecting it again with the outside world, the interest of Masulipatam will continue to lie in the past. Its manufactures, principally chintzes and coloured cloths, have been crushed out of the market by English piece-goods; and, since the opening of the railway to Bombay, that city has superseded Masulipatam as the port for the Nizām's Dominions. The East Coast Railway has also contributed to the extinction of the sea-borne traffic formerly carried on between Masulipatam, Cocanāda, and the southern coast of India. The annual imports are now valued at only Rs. 7,11,000, and the exports at Rs. 10,31,000.

As to the origin of Masulipatam we have no certain information, and its real history begins early in the seventeenth century. In 1611 the East India Company dispatched the ship *Globe*, commanded by Captain Hippon, to open a trade with the Coromandel coast; and in 1612 the vessel took a cargo of cotton goods and other fabrics to Bantam and Siam, returning to Masulipatam in the following year. With Captain Hippon sailed, in the capacity of a supercargo, Peter Floris, a Dutchman, who has left a diary describing how English trade was begun at the place. For many years disputes raged between the new-comers and the Dutch. In 1628 the English were compelled to remove to Armagon on the Nellore coast, but in 1632 they returned to Masulipatam, having obtained a *farmān* from the Sultan of Golconda. By this time the town had become of much importance; and it is desc11bed by a Dominican friar,

who visited it in 1670, as being 'famous all along the coast of Coromandel,' and as 'resembling Babel in the variety of tongues and the differences of garbs and costumes.'

In 1686 the Dutch seized the government of Masulipatam and ordered the English not to trade outside the town. The English, undaunted, warned the Dutch not to interfere with their trade 'on account of the ill consequences that may be'; and in 1690 the Madras Government obtained a *farmān* from the Mughal emperor authorizing them to reopen their factories along the coast. Trade, however, appears to have been on a very small scale; for in 1726 the Masulipatam and Madapollam factories were maintained at a cost of 628 pagodas per annum, while the Vizagapatam factory at the same date cost 6,000 pagodas.

In 1750 Masulipatam was seized by the French under the orders of Dupleix, and continued in their possession until 1759. In 1758, with a view to divert the attention of the French, who were then preparing for a strenuous effort in the Carnatic and the siege of Madras city, an expedition, consisting of 300 Europeans and 1,400 sepoys under Colonel Forde, was dispatched by Clive from Calcutta to Vizagapatam. This force speedily found itself hampered on all sides, and it seems to have been a counsel of despair that prompted Colonel Forde to march on Masulipatam. Arrived there, he found a means of escape in the ship *Hardwicke*, which, with two other vessels, was at anchor in the roads. Before resorting thereto, however, Colonel Forde resolved on the desperate enterprise of endeavouring to storm the fort. Although it was held by a force superior to his own, and a French corps with native auxiliaries manœuvred in his rear, fortune favoured him, and the attack, delivered early in 1759, was successful. The Sūbahdār of the Deccan, the most powerful auxiliary of the French, was shortly afterwards forced to negotiate with the English, owing to the attack made on his kingdom by his brother Nizām Alī; and under a treaty signed on May 14, 1759, Masulipatam with the adjacent territory passed to the Company. Thereafter its political history was uneventful. It became the head-quarters of a Chief and Council. These were abolished in 1794, and a Collector was appointed. In 1834 the occupation of the fort by European troops was discontinued, and the native garrison was withdrawn in 1864. The trade of the port has steadily diminished. The opening of the Bezwāda-Masulipatam canal in 1863 gave promise of a revival, but these hopes were dashed to the ground by the tidal wave of 1864, which practically

wiped much of the town off the face of the earth. As many as 30,000 people perished in this inundation.

In 1901 the population of Masulipatam was 39,507: namely, 34,126 Hindus, 4,635 Musalmāns, 714 Christians, and 32 'others.' It was constituted a municipality in 1866. During the ten years ending 1902-3 the municipal receipts and expenditure averaged Rs. 56,000. In 1903-4 they were Rs. 62,000 and Rs. 57,000 respectively. Most of the income is derived from house and land taxes, tolls, and fees from markets and slaughter-houses.

The Masulipatam carpet industry, formerly famous, is now almost extinct; and the beautiful carpets which used to be largely exported to England are seldom seen. Printed cloths are still manufactured, but the lessening demand for them will soon kill the industry. There is a tannery in the town, which sends out annually skins worth from Rs. 50,000 to Rs. 60,000. The principal educational institution is the Church Missionary Society's first-grade college, called after its founder, Dr. Noble. The Hindu high school is a private institution teaching up to the matriculation standard.

Mogalturru.—Village in the Narasapur *tāluk* of Kistna District, Madras, situated in 16° 25′ N. and 81° 36′ E., on the Narasapur canal. Population (1901), 6,348. It contains the fort of the former *zamīndārs* of Mogalturru, and was the head-quarters of one of the early Collectorates. There is a small salt factory close by.

Narasapur Town.—Head-quarters of the subdivision and *tāluk* of the same name in Kistna District, Madras, situated in 16° 26′ N. and 81° 42′ E., on the Vasishta mouth of the Godāvari river, 6 miles from the sea, and on the Narasapur canal, 35 miles from Nidadavolu. Population (1901), 10,279. The Dutch very early established a branch of their PĀLAKOLLU factory at Narasapur and had an iron foundry here; some of their buildings still remain. The English occupied the northern suburb in 1677. In 1756 they were expelled from this, as from their other factories in the District, by the French. In 1759 it was regained by an expedition detached by Colonel Forde on his way to Masulipatam. The factory was not abolished till 1827. The trade of Narasapur has now almost entirely disappeared, and the only article of export is bones, which are sent away to the value of Rs. 1,500 annually. The Taylor high school, founded in 1852, deserves mention as the outcome of the first systematic attempt to extend primary education in the Presidency. It is managed by a local com-

mittee and has now 400 pupils. The town has been constituted a Union.

Nūzvīd Town.—Head-quarters of the *tāluk* and *zamīndāri* of the same name in Kistna District, Madras, situated in 16° 48′ N. and 80° 52′ E., on rising ground about 24 miles north-east of Bezwāda. Population (1901), 9,015. Around it are large tracts of jungle, formerly its chief defence. It contains a mud fort still inhabited by the *zamīndārs*. Its chief features are large groves of coco-nut palms and mango-trees.

Pālakollu.—Town in the Narasapur *tāluk* of Kistna District, Madras, situated in 16° 31′ N. and 81° 44′ E., on the Narasapur canal, 6 miles from Narasapur town and 29 from Nidadavolu, the nearest railway station. Population (1901), 10,848. The Dutch opened a factory here in the middle of the seventeenth century, and for some time it was the head-quarters of their establishments on this part of the coast. It fell to the English in 1783, but the Dutch remained in possession on payment of a small quit-rent till 1804. The place was restored to Holland by the convention of 1814, but was finally ceded to the British in 1825. The most interesting relic of the Dutch occupation is the little cemetery in the heart of the town, which contains inscriptions dating back to 1662. The cultivation of the Batavian orange and pummelo, introduced by the Dutch settlers, is still a feature of the place. Pālakollu is a flourishing town and the chief market of the Western Delta of the Godāvari, the trade being chiefly in fruit, rice, and yarn. Local affairs are managed by a Union *panchāyat*.

Vīravāsaram.—Village in the Bhīmavaram *tāluk* of Kistna District, Madras, situated in 16° 32′ N. and 81° 37′ E. Population (1901), 6,464. Vīravāsaram (the Verasheroon of the old records) was one of the earliest English settlements on this part of the coast, but was abandoned in 1702.

GUNTŪR DISTRICT

Formation and naming.

Guntūr District.—A District in the Madras Presidency which has recently (1904) been constituted out of the Ongole *tāluk* of Nellore and portions of Kistna District. Its head-quarters are at the town after which it is named, and it consists of the revenue subdivisions of Guntūr, Tenāli, Narasaraopet, and Ongole. Until 1859 there was an older District of the same name and with the same head-quarters. This was abolished in that year and divided between the Districts of Rājahmundry and Masulipatam, which were renamed Godāvari and Kistna. Subsequent to this change the construction and extension of the great irrigation systems which lead from the Godāvari and Kistna rivers, and the increase in work of all kinds which is necessarily the result of improvement in the methods of administration, rendered the task of efficiently controlling these two wealthy areas more than one Collector could compass. The Godāvari District has accordingly now been lightened by the transfer to Kistna of the *tāluks* of Yernagūdem, Ellore, Tanuku, Bhīmavaram, and Narasapur (excluding Nagaram Island), while Kistna has been relieved of the *tāluks* of Tenāli, Guntūr, Sattanapalle, Palnād, Bāpatla, Narasaraopet, and Vinukonda, which, with the Ongole *tāluk* of Nellore, have been formed into the new Guntūr District. Its area is 5,733 square miles, the population (1901) 1,490,635, and the land revenue demand 56½ lakhs.

Guntūr Subdivision.—Subdivision of Guntūr District, Madras, consisting of the GUNTŪR and SATTANAPALLE *tāluks*.

Guntūr Tāluk.—*Tāluk* of Guntūr District, Madras, lying between 16° 8′ and 16° 35′ N. and 80° 20′ and 80° 41′ E., with an area of 500 square miles. The population in 1901 was 200,557, compared with 266,817 in 1891. The *tāluk* contains two towns—GUNTŪR (population, 30,833), the head-quarters, and MANGALAGIRI (7,702)—and 109 villages, of which UNDAVALLE is interesting for its archaeological remains. The demand on account of land revenue and cesses in 1903-4 amounted to Rs. 5,13,000. In the south of the *tāluk* the tract adjoining Bāpatla is a fertile expanse of black soil, a veritable

garden when the rainfall is sufficient, but extremely desolate in dry weather. The centre of the *tāluk* is liable to be submerged by floods, which deposit a wealth of river mud on the land, making portions of it very fertile. The country is well supplied with good roads, and the Bank Canal passes through a portion of its north-eastern corner. The heat in April and May is excessive, but after the north-east monsoon breaks the weather becomes cool and pleasant.

Sattanapalle Tāluk.—*Tāluk* in the north of Guntūr District, Madras, lying between 16° 15′ and 16° 49′ N. and 79° 51′ and 80° 26′ E., with an area of 714 square miles. The population in 1901 was 159,645, compared with 138,617 in 1891. It contains 168 villages, of which Sattanapalle is the head-quarters. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 4,49,000. A wide extent of black cotton soil produces heavy crops of cotton, the staple product. There is practically only one main road, with two or three subsidiary branches; and in wet weather the black soil and the water-courses with their treacherous beds become almost impassable.

Tenāli Tāluk.—Subdivision and *tāluk* of Guntūr District, Madras, formerly known as Repalle. It lies on the right bank of the Kistna, and extends between 15° 45′ and 16° 26′ N. and 80° 31′ and 80° 54′ E., from the sea to within a few miles of the Sītānagaram and Mangalagiri hills, with an area of 644 square miles. The population in 1901 was 288,127, compared with 222,757 in 1891. TENĀLI, on the East Coast Railway, the head-quarters, is a Union of 10,204 inhabitants. There are 150 other villages. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 15,73,000. With the exception of a slight sandstone ridge at Kolakalūr, the *tāluk* is wholly composed of river alluvium, and in fact lies below flood-level and needs to be protected by embankments. Almost the whole is irrigated by channels from the Kistna river, and it is the richest *tāluk* in the Presidency. Except along the canals and the few roads, travelling is difficult in dry weather, and quite impossible throughout the greater part of it during the monsoons.

Narasaraopet Subdivision.—Subdivision of Guntūr District, Madras, consisting of the NARASARAOPET, PALNĀD, and VINUKONDA *tāluks*.

Narasaraopet Tāluk.—*Tāluk* in Guntūr District, Madras, lying between 15° 53′ and 16° 24′ N. and 79° 48′ and 80° 21′ E., with an area of 713 square miles. The population in 1901

was 168,547, compared with 156,377 in 1891. NARASARAOPET, the head-quarters, is a Union of 7,108 inhabitants, and there are also 114 villages. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 4,30,000. Most of the *tāluk* produces 'dry' crops, but there are patches of irrigation under rain-fed tanks. The grazing land is excellent and the cattle bred here are well known. Several bold hills, such as Kotappakonda, diversify the country; and it is intersected by watercourses, which are dry for the greater part of the year, but become foaming torrents when rain falls.

Palnād Tāluk.—*Tāluk* in the extreme west of Guntūr District, Madras, lying between 16° 10′ and 16° 44′ N. and 79° 14′ and 80° E., with an area of 1,041 square miles. The population in 1901 was 153,638, compared with 142,011 in 1891, living in 96 villages. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 4,35,000. The head-quarters were recently transferred from Dāchepalle to Guruzāla. The *tāluk* is a more or less elevated tract, intersected by numerous mountain torrents and almost surrounded by low outliers from the Eastern Ghāts. Bounded on the north and west by the Kistna river, which is here both narrow and swift, and fringed on the south and east by hills and jungles, it is a somewhat inaccessible spot, and its history and natural conditions differ considerably from those of the rest of the District. Most of the cultivation is 'dry,' and after the first rains the country forms a grazing-ground for the herds of the ryots of the Kistna delta. The climate is extremely variable, the heat being very great in the summer months, while comparatively low temperatures are registered after the monsoons are over.

Vinukonda Tāluk.—*Tāluk* in the west of Guntūr District, Madras, lying between 15° 50′ and 16° 24′ N. and 79° 32′ and 79° 55′ E., with an area of 646 square miles. The population in 1901 was 82,493, compared with 82,445 in 1891. VINUKONDA, the head-quarters, has 7,266 inhabitants, and there are 71 other villages. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 1,87,000. Great part of the *tāluk* is covered with black soil, through which protrude many little rocky hills. On the north-west is much scrub jungle. Along the course of the Gundlakamma, which flows through the southern portion, prehistoric implements have been found, and stone circles (dolmens) and numerous inscriptions of later times are to be seen in many villages. There are indications of copper and iron among the hills.

Ongole Subdivision.—Subdivision of Guntūr District, Madras, consisting of the ONGOLE and BĀPATLA *tāluks*.

Ongole Tāluk.—*Tāluk* of Guntūr District, Madras, lying between 15° 17′ and 15° 59′ N. and 79° 48′ and 80° 16′ E., with an area of 796 square miles. It is mostly flat, but contains a few hills, of which Chimākurti is the loftiest, being 2,097 feet above sea-level. The Gundlakamma, the Mudigandi, the Mūsi with its tributary the Chilakaleru, and the Paleru are the principal streams. The population in 1901 was 224,172, compared with 225,240 in 1891. It contains three towns—ONGOLE (population, 12,864), the head-quarters, KOTTAPATAM (7,626), and ADDANKI (7,230)—and 162 villages. The demand on account of land revenue and cesses in 1903-4 amounted to Rs. 4,30,000. The predominant soils are black clay and black loam, both very fertile if rain falls. Of the occupied area in Government villages of 288,000 acres, only 2,700 acres are 'wet' land, the rest being 'dry.' Some of the former is watered from the Kistna. *Cholam* (*Sorghum vulgare*) is the most important crop.

Bāpatla Tāluk.—*Tāluk* of Guntūr District, Madras, situated on the coast between 15° 37′ and 16° 16′ N. and 80° 8′ and 80° 37′ E., with an area of 679 square miles. The population in 1901 was 213,456, compared with 181,940 in 1891. It contains three towns—BĀPATLA (population, 8,595), the head-quarters, CHĪRĀLA (16,264), and VETAPĀLEMU (9,547) —and 111 villages. The demand on account of land revenue and cesses in 1903-4 amounted to Rs. 9,33,000. Its physical features differ greatly in different parts. The north-west portion is black cotton soil, flooded in wet weather but terribly dried up during the hot season, when the villagers in some places have to carry water for miles to their houses. A large portion is deltaic alluvium and is irrigated, the contrast between the expanse of green rice-fields here and the barren-looking villages a few miles north-west being very striking. Parallel to the coast and for some miles inland runs a long sand ridge, which shuts in the drainage flowing towards the sea and causes an enormous swamp communicating with the sea at Chinna Ganjām.

Addanki.—Town in the Ongole *tāluk* of Guntūr District, Madras, situated in 15° 49′ N. and 79° 58′ E., on the banks of the Gundlakamma river, 23 miles from the Ongole railway station. Population (1901), 7,230. It contains a ruined mud fort of about 79 acres in area, said to have been built or restored about A. D. 1400 by Haripāludu, son of Pratāp Rudra.

The Mondapāti family of Ongole ruled here two centuries ago. Addanki is the centre of an extensive pulse-growing and cattle-breeding country, with a large trade in grain, and is the head-quarters of a deputy-*tahsīldār*.

Amarāvati.—Village in the Sattanapalle *tāluk* of Guntūr District, Madras, situated in 16° 34′ N. and 80° 22′ E., on the south bank of the Kistna river. Population (1901), 2,120. A little to the north of it once stood the town of Dhārani-kotta, the capital of the Buddhist dynasty of the Andhras. The village is widely known for the beautiful Buddhist *stūpa* which it contains. This was first discovered by the servants of a local Rājā who were searching for building materials. It was then hidden under a large mound of earth at the south-west corner of the village, which was locally known as the 'mound of lights.' The Rājā's men sunk a shaft through the centre of this, and found a soapstone casket containing a pearl and some relics. They played havoc with the marble sculptures of which the *stūpa* was constructed. Some were built into mean temples in the neighbourhood, others were used for making lime. While this work of devastation was in progress, Captain (afterwards Colonel) Colin Mackenzie visited the place in 1797. He wrote an account of the sculptures, published in the *Asiatic Researches* for 1807. The work of destruction continued, some of the marbles being built into the sides of wells and tanks. In 1816 Colonel Mackenzie paid a second visit to the place with a staff of draughtsmen and assistants, and began the preparation of his folio volume regarding it, which is now in the India Office. In 1840 Mr. (afterwards Sir) Walter Elliot excavated a portion of the mound and sent some of the marbles to Madras. Some years later a number of them were shipped to England, where they may be seen on the staircase of the British Museum; and these attracted the attention of Mr. Fergusson, whose account of them in his *Tree and Serpent-Worship* brought them a wide renown. In 1877 further excavations were undertaken by Mr. Robert Sewell, who published an exhaustive account of the locality and the sculptures in 1880. The vandalism of the villagers had by this time irretrievably ruined a great part of the marbles, but the Government ordered the whole of the mound to be cleared, and this was effected. This work laid bare a circular processional path, flagged with stones, which was edged on both sides by a tall railing of marble sculptures. At the points of the compass were four small chapels, or entrances, with pillars. In the centre was doubtless originally the usual *dāgaba*, but of this there is now

no trace. The pillars, slabs, and cornices of the railing are covered with carving of astonishing excellence, the sculptures representing scenes in the life of Buddha and various Buddhistic emblems and symbols. Fergusson considers that 'in elaboration and artistic merit' the rail is 'probably the most remarkable monument in India.' Inscriptions in the Brahmī character are frequent, and translations of some of these are given in Dr. Burgess's *Notes* on the *stūpa*. A large series of the sculptures from the carved railing are now in the Museum in Madras, where they have been set up as far as possible in the relative positions which they originally occupied.

Bāpatla Town.—Head-quarters of the *tāluk* of the same name in Guntūr District, Madras, situated in 15° 55′ N. and 80° 28′ E., on an elevated sand ridge about 5 miles from the sea. Population (1901), 8,595. It is a station on the East Coast Railway, and contains the offices of a District Munsif and *tahsīldār*, and a good travellers' bungalow. The place is administered as a Union.

Bellamkonda ('the hill of caves').—Hill fortress in the Sattanapalle *tāluk* of Guntūr District, Madras, situated in 16° 30′ N. and 80° E. The works consist of a single stone wall, connecting the elevated points of the hill and having bastions at the south-east and north-west angles, which terminate the two extremities of the principal front. The entrance, which is in this front, at about a third of its length from the north-west bastion, is gained by a winding pathway from the foot of the hill near the village. In shape, the fort is roughly an equilateral triangle, enclosing an area of irregular elevation of about one-sixteenth of a square mile. The wall is in a very ruinous state, every shower loosening and bringing down parts of it. The two bastions are the most perfect parts, but even these from their overhanging position seem to threaten destruction to everything below. The interior is overgrown with bushes and long grass, which obstruct the passage to the eastern and western faces in many parts. There still remain some buildings of stone, the old magazine and storerooms. The highest point is 1,569 feet above the sea. The early history of the fortress is obscure. It is said to have been constructed by the Reddi kings of KONDAVĪD. After their power had passed away in 1482 it perhaps fell into the hands of the Orissa kings, for Firishta says it was taken by the Sultān of Golconda from a Telugu Rājā who was a vassal of Orissa. In 1531 the Orissa king took the place a second time by a general escalade, regardless of the loss of his best troops. It must afterwards

have reverted to the kings of Vijayanagar, for it was finally taken by the Muhammadans in 1578, when they put an end to Hindu rule in this part of the country. At the close of the eighteenth century the English had a few troops stationed at the bottom of the hill in mud huts.

Bhattiprolu.—Village in the Tenāli *tāluk* of Guntūr District, Madras, situated in 16° 6′ N. and 80° 47′ E., to the north of Repalle. Population (1901), 3,568. Its interest lies in the Buddhist *stūpa* which it contains. This was much damaged in the last century by subordinates of the Public Works department, who utilized its marbles for making a sluice and other constructions, and little of it now remains. The *stūpa* was 132 feet in diameter, and excavations made in 1892 revealed three caskets containing relics and jewels, which are now in the Madras Museum. On them are nine inscriptions in the Pālī language, and in characters resembling those of Asoka's inscriptions, stating that they were made to hold relics of Buddha. The *stūpa* and these caskets are described in volume xv of the Reports of the Archaeological Survey of India.

Chīrāla.—Town in the Bāpatla *tāluk* of Guntūr District, Madras, situated in 15° 50′ N. and 81° 21′ E., 8 miles along the sand ridge from Bāpatla. Population (1901), 16,264. It has been constituted a Union, and a prosperous weaving industry is carried on.

Gundlakamma.—River of Southern India, which rises in the Nallamalai hills in Kurnool District, Madras, in 15° 48′ N. and 78° 51′ E. Shortly afterwards it is joined by two mountain streams, the Zampaleru and the Enumaleru, and then enters the plains through the Cumbum *ghāt*. An enormous reservoir, known as the Cumbum tank, has been formed for irrigation purposes by throwing a dam across the gap at this point. After issuing from this tank, the river turns to the north and runs under the Velikonda hills in a meandering course through a corner of Kurnool District. It next enters the south of Guntūr District, then turns first east and later south-east, flowing part of this distance through Nellore District, and at last falls into the sea in 15° 34′ N. and 80° 10′ E., near Pedda Devarampād, about 12 miles north of Ongole. The river comes down in freshes in September, October, and November; and during high tides it is navigable for two miles inland from its mouth.

Various projects have been put forward for utilizing its waters for irrigation on a large scale. One scheme is to build

a masonry dam across it at Tangirāla, about 12 miles south-west of Vinukonda in Guntūr District. This would intercept the drainage from an area of 1,771 square miles, and form a reservoir 15 square miles in extent, capable of storing water sufficient to irrigate about 130,000 acres. The supply in the reservoir would be taken down the bed of the river for 23 miles to a point where a dam could be built to turn it into a channel on the left bank, which would distribute it over the Ongole *tāluk*. The estimated cost of this project is about 60 lakhs, and it is expected to yield a return of from 2 to 3 per cent. on the capital outlay.

Guntūr Town.—Former head-quarters of the Collector of the old Guntūr District, Madras, situated in 16° 18′ N. and 80° 28′ E. Since 1859 it was the station of the Sub-Collector of Kistna, and it has recently become the head-quarters of a new Guntūr District. It was constituted a municipality in 1866. The municipal income and expenditure during the ten years ending 1902–3 averaged Rs. 49,000 and Rs. 48,000 respectively. In 1903–4 the income amounted to Rs. 1,58,000 and the expenditure to Rs. 1,55,000; of the former Rs. 1,00,000 was contributed by Government, and the rest was principally derived from the house and land taxes and tolls. The population in 1901 numbered 30,833, of whom 22,843 were Hindus, 6,926 Musalmāns, and 1,060 Christians. The town is situated 6 miles to the east of the Kondavīd hills, which the rays of the evening sun light up with beautiful effect. It was apparently founded in the second half of the eighteenth century by the French, who preferred it to Kondavīd, the head-quarters of the *Sarkār* then in their possession, on account of its greater coolness and better water-supply. The town indeed derives its name from the Telugu *gunta*, 'a tank.' Guntūr still enjoys the reputation of being one of the healthiest and best-conserved towns in the Presidency, but as compared with other places its water-supply can no longer be considered good. A partial scheme for improving it by tapping some springs in the neighbourhood has recently been completed at a cost of over 2 lakhs.

When the NORTHERN CIRCĀRS were ceded to the Company in 1765, Guntūr was specially exempted from the cession during the life of Basālat Jang, whose *jāgīr* it was. In 1778 the Madras Government rented the place from Basālat Jang. It was restored to him in 1780, but again came into the hands of the British in 1788, the cession being finally confirmed in 1823.

Five lines of road converge on the town; the most important

being the trunk road which runs from Sītānagaram, on the Kistna river near Bezwāda, to Madras. It is a great centre of the cotton trade, containing three steam and two hand presses, and five ginning factories. It possesses a second-grade college, managed by the American Evangelical Lutheran Mission. In former days, in the hot season when the canals were closed, the only means of egress was by a road journey of 60 miles to Masulipatam and thence by steamer to Madras. This inaccessibility has been removed since the opening of the East Coast and Southern Mahratta Railways, on the latter of which it has a station.

Kondavīd.—Village and hill-fortress in the Narasaraopet *tāluk* of Guntūr District, Madras, situated in 16° 16′ N. and 80° 16′ E. Population (1901), 1,979. It was once the capital of a province of the same name extending from the Kistna river to the Gundlakamma. The fortress, constructed in the twelfth century, was a seat of the Reddi dynasty from 1328 to 1482. It was taken by Krishna Deva Rāya of Vijayanagar about 1516 and by the Sultāns of Golconda in 1531, 1536, and 1579. The Musalmāns called it Murtazanagar. The French obtained the province in 1752, and it passed to the English in 1788. The fortifications, erected upon the crests of a small range of hills, are extensive and strongly built with large stones. They are many miles in circumference and in a fair state of preservation. A description of them will be found in the *Indian Antiquary*, vol. i. p. 182. The interior of the fort, which is overgrown with thick jungle, contains the ruins of numerous storehouses and magazines. The hill, the highest point of which is 1,701 feet above the sea, was once used as a sanitarium by the officers at Guntūr.

Kottapatam (*Allūru-Kottapatnam*).—Town in the Ongole *tāluk* of Guntūr District, Madras, situated in 15° 25′ N. and 80° 10′ E., on the seashore, about 160 miles north of Madras city and 10 miles south-east of Ongole town. Population (1901), 7,626. The place was once a Union, but is so no longer. It is a well-built town, the streets and houses being constructed with unusual symmetry. At one time it was an important seaport where ships used to call. After the construction of the BUCKINGHAM CANAL the port suffered; and when the East Coast Railway was opened, the place lost all its commercial importance, with the result that a large number of its inhabitants have settled in Madras and elsewhere. The majority of the population now consist of Komatis. The story goes that about 160 years ago Padarti, which is at a distance of

about 1½ miles from Kottapatam, was an important seaport. A quarrel arose there between the Balijās and the Komatis, in consequence of which, with the permission of the local Rājās Maddupati Rāmachandra Rāju and Maddupati Bhadra Rāju, the Komatis took themselves off and built the town of Kottapatam. Padarti then fell on evil days and Kottapatam rose to prominence. Two temples were constructed, dedicated to Vishnu and to Siva, and big wooden cars with elaborate carvings on them were made for the festivals. The place is now noted for its extensive cultivation of *rāgi* (*Eleusine coracana*) and its casuarina groves. It exports vegetables, raw fish, and firewood to Ongole.

Mangalagiri ('Hill of happiness).—Town in the Guntūr *tāluk* and District, Madras, situated in 16° 26′ N. and 80° 34′ E. Population (1901), 7,702. Some distance up the hill after which it is named is a rock-cut platform with a temple of Narasimhaswāmi, to which thousands of Hindus flock during the annual festival held at the full moon in March. In the town is a large deep reservoir, built square with stone steps. Local legends used to say that it was unfathomable, and had a golden temple at the bottom, but in the great famine of 1833 it dried up. In it were found nearly 10,000 old matchlocks, thrown there, doubtless, during one of the many wars which have swept over this part of the country.

Narasaraopet Town.—Head-quarters of the subdivision and *tāluk* of the same name in Guntūr District, Madras, situated in 16° 15′ N. and 80° 4′ E., on the Southern Mahratta Railway. Population (1901), 7,108. It has been constituted a Union. It took its name from Narasa Rao, father of the Malrāzu Venkata Gunda Rao who enlarged the fine tank in the town. There are ancient temples in the place, and inscriptions are to be seen on a slab in front of the shrine to Pattābhi Rāmaswāmi and in the roof of that to Bhīmeswara. Not far off is the famous shrine at Kotappakonda, where at the new moon festival in February as many as 40,000 Hindus gather.

Nizāmpatam.—Seaport in the Tenāli *tāluk* of Guntūr District, Madras, situated in 15° 55′ N. and 80° 41′ E. Population (1901), 4,216. During the five years ending 1883–4 the value of the imports and exports respectively averaged Rs. 1,12,250 and Rs. 2,56,000, but in 1903–4 they had fallen to Rs. 230 and Rs. 5,300. Nizāmpatam was the first port on the east coast of India at which the English began to trade. They landed there in 1611, sent goods on shore, and left two supercargoes, picking them up again on the ship's

return from Masulipatam. A factory was established in 1621. The place was ceded to the French by the Nizām as part of the NORTHERN CIRCĀRS, but was granted to the English by Salābat Jang in 1759. The English called the place Pettipollee from the neighbouring village of Pedapalle.

Ongole Town.—Head-quarters of the subdivision and *tāluk* of the same name in Guntūr District, Madras, situated in 15° 31′ N. and 80° 3′ E., on the East Coast Railway, and on the trunk road from Madras to Calcutta, 181 miles from Madras. Population (1901), 12,864. It was constituted a municipality in 1876. The municipal income and expenditure during the ten years ending 1902–3 averaged Rs. 13,900 and Rs. 13,200 respectively. In 1903–4 the income was Rs. 16,000, the chief sources being the profession tax, the tax on buildings, and tolls; and the expenditure was Rs. 17,000. Ongole contains an industrial institute for the benefit of the native Christian community, under the management of the American Baptist Mission. In this aluminium work and boot- and shoemaking are taught. It also possesses a second-grade college and other institutions for the education of boys and girls, two orphanages for children, and a training school for girls managed by the same mission. Other institutions are a municipal lower secondary school, and a Government training school for the instruction of teachers of classes up to the primary standard. Pulses, *ghī*, and leather are exported to Madras and elsewhere.

Tenāli Town.—Head-quarters of the *tāluk* of the same name in Guntūr District, Madras Presidency, situated in 16° 15′ N. and 80° 38′ E., on the East Coast Railway. Population (1901), 10,204. Since the advent of the railway, new streets have been laid out and houses built, and the town gives promise of further considerable extension. In the temples at Tenāli are some inscriptions which have not yet been deciphered; and the town is reputed to be the birthplace of Garlapati Rāmalingam, one of the eight poets who adorned the court of king Krishna Deva of Vijayanagar.

Undavalle.—Village in the Guntūr *tāluk* of Guntūr District, Madras, situated in 16° 30′ N. and 80° 35′ E. Population (1901), 1,123. It is chiefly famous for the numerous rock-cut shrines and *mantapams* which stand upon the hill beside it. The largest of these is a four-storeyed temple, with galleries and rudely sculptured figures, dedicated to Anantasayana, or Vishnu sleeping on the serpent, a colossal sculpture of whom is to be seen in the third storey. The caves are undoubtedly

of Brāhmanical origin, and perhaps belong to a date very soon after the downfall of Buddhism.

Vetapālemu.—Town in the Bāpatla *tāluk* of Guntūr District, Madras, situated in 15° 47′ N. and 80° 19′ E. Population (1901), 9,547. It has long been a place of some trade, and Streynsham Master in 1679 mentions it as the centre of the local weaving industry. A temple here is said to have been built by the Chola kings.

Vinukonda Town ('Hill of hearing,' said to be so called because here Rāma first heard of the abduction of his wife).—Head-quarters of the *tāluk* of the same name in Guntūr District, Madras, situated in 16° 3′ N. and 79° 44′ E. Population (1901), 7,266. It has been constituted a Union. It lies close under the hill after which it is named. This is a striking height, consisting of two peaks, one of which is almost inaccessible and the other contains the ruins of an old fort. These last have been so thoroughly demolished that their line can now hardly be traced, but they include the remains of an old powder magazine, a temple, and other buildings. With Bellamkonda and Kondavīd, Vinukonda formed a triangle of fortresses which were the scene of severe fighting in the sixteenth century. The place was taken by the Vijayanagar king Krishna Deva in 1515 and passed finally under the Golconda Sultāns in 1579. After the English took Masulipatam this fort was regarded as of much importance. The Company established a garrison here in 1790, and made it a dépôt for stores and constructed residences for officers. In 1808 it was abandoned, the fortifications being demolished and the stores removed to Masulipatam.

NELLORE DISTRICT

Boundaries, configuration, and hill and river systems.

Nellore District (*Nellūru*, perhaps meaning 'rice-town').—A District on the east coast of the Madras Presidency, north of Madras City, lying between 13° 29′ and 16° 1′ N. and 79° 5′ and 80° 16′ E. After Vizagapatam it is the largest in the Presidency, its area being 8,761 square miles [1]. It forms part of the plains of the Carnatic, and is bounded on the east by the Bay of Bengal; on the south by the Districts of Chingleput and North Arcot; on the west by the Eastern Ghāts; and on the north by the District of Guntūr. The country rises very gradually till it reaches the foot of the Ghāts on the west. The outer range of these, known locally as the Velikondas ('outside hills'), separates Nellore from Cuddapah and Kurnool along nearly the whole of its western side. In the north-west, however, the range breaks up and recedes much more to the west, and in this region it lacks the bold and rugged aspect which distinguishes it in the south. It is the only range of hills in the District of any importance. The soil of Nellore is not naturally fertile, and large portions of it are either rocky wastes or covered with scrub jungle. A narrow belt of alluvial and backwater deposits, varying in width from 2 to 14 miles, runs close to, and parallel with, the sea. The best known of the backwaters is the PULICAT LAKE, which lies partly within this District and almost cuts off the SRĪHARIKOTA Island from the mainland. The scenery of Nellore is uninteresting, its distinguishing feature being wide extents of scrub jungle. Fine groves are occasionally found in the neighbourhood of villages and tanks, and in places stretches of bright green rice contrasting with dark clumps of trees form pretty pictures. Inland the country is particularly monotonous and dreary, though the line of the Ghāts is bold and precipitous.

The principal rivers which drain the District traverse it from west to east and fall into the Bay of Bengal. They are seven in number, and are of the usual South Indian type, dry during the greater portion of the year but carrying heavy floods during

[1] While this work was passing through the Press, the Ongole *tāluk* of this District was transferred to the newly-formed Collectorate of Guntūr. The present article, as a rule, deals with the District as it stood before this alteration.

the rainy season. None of them is practicable for navigation except the Kandleru, up which boats drawing 2 or 3 feet can proceed for about 25 miles. The southernmost is the Swarnamukhi, which rises in the Chittoor hills, flows for about 30 miles in a north-easterly direction through the District, and falls into the Bay of Bengal 9 miles north of Armagon. North of this is the Kandleru, which bears various names in different parts of its course. Rising in the Velikondas, it flows past Gūdūr and empties itself into the sea near Kistnapatam. Its water is salt from Gūdūr downwards. Farther north is the PENNER, the most important of all, on which the town of Nellore, the head-quarters of the District, is situated. It rises in the Nandidroog hills in Mysore, and after a course of 285 miles in Anantapur and Cuddapah enters this District through a fine gorge in the Velikondas at Somasila. It flows in a broad and sandy bed for 70 miles in a generally eastern direction through the *tāluks* of Atmakūr and Nellore, and debouches into the sea through several openings 18 miles below Nellore town. The river is useless for navigation, but a very large area is now irrigated from its water. Two anicuts (dams) have been built across it, at Nellore and at Sangam, which supply numerous irrigation channels. The Madras Irrigation Company began a third at Someswaram, but the project was eventually abandoned. Farther north, in the Kandukūr and Ongole *tāluks*, flow the Manneru, the Paleru, and the Mūsi rivers. These all rise in the Velikondas, and fall into the sea after receiving numerous streamlets on their way. The last river of any importance is the GUNDLAKAMMA, which issues from the great Cumbum tank in Kurnool District. After being joined by numerous rivulets it flows past Addanki.

The backwaters along the coast have already been mentioned. The Kistnapatam backwater contains over 30 feet of water in the hot season at low tide, but a bar with only 5 or 6 feet blocks the entrance. Several small ports had a considerable coasting trade in former times, but the BUCKINGHAM CANAL and the East Coast Railway have now practically destroyed the whole of it. Of these places the most important, beginning from the north, were Kottapatam, Itamukkula, Rāmayapatnam, Iskapalli, Kistnapatam, and Dugarāzupatnam or Armagon. At none of them is access possible to boats of heavy tonnage. Six miles south of Dugarāzupatnam lie the Armagon shoal and lighthouse.

Geology.

The central area of Nellore is composed of Archaean, well

foliated, mixed mica and hornblende schists. To the east of a line drawn from north to south through the middle of these gneisses or schists occur, generally parallel to the foliation, intrusive sheets and lenses of very micaceous pegmatites. Within the last ten years these have given rise to a considerable mica industry. More than 2,000 acres were taken up on leases in 1898. The pegmatites are coarsely intergrown mixtures of felspar, quartz, and muscovite, with tourmaline, garnet, beryl, and columbite as accessory minerals. The largest mica crystals in India, measuring 15 feet at right angles to the folia and 10 feet across, were extracted from Mr. Sargent's mine at Inukurti. The mica is generally coloured grass-green, yellowish-green, or a smoky tint. The possibilities of the field are not yet thoroughly known, and there may be a great future for the industry, though at present it is less flourishing than it was a few years ago.

On the west and south-west of this central area come gneissoid granite and augite and olivine-bearing diabase dykes; and beyond them again, in the same direction, we find the somewhat irregular and shattered edge of the great overlying Cuddapah series of the Purāna group of ancient sedimentary unfossiliferous rocks, which stretches away to the west out of the District. In the other direction, where the gneissic area passes insensibly under the alluvium, are occasional traces of the Rājmahāl plant-bearing sandstones and shales of Jurassic age, lying gently inclined on the gneiss, and a long, almost continuous, narrow belt of Cuddalore sub-recent sandstones, followed by the coastal alluvium, low-level laterite, and areas of blown sand.

Botany. Large trees are not common in the District, being usually found only near villages. Among them may be mentioned the *margosa* (*Melia Azadirachta*), which grows even on laterite soil, the various species of *Ficus* (*indica*, *Tsiela*, and *religiosa*), the tamarind, the acacias (*arabica* and *speciosa*), and the mango. The palmyra and the coco-nut palms both grow, the former abundantly, the latter unwillingly, in the coast *tāluks*, and the bastard date (*Phoenix sylvestris*) is also found. A large part of the District is covered with low scrub jungle, in which the red-sanders tree (*Pterocarpus santalinus*), the satin-wood (*Chloroxylon Swietenia*), and a few other useful species occur. At the foot of the Velikondas in the Rāpūr *tāluk* some fairly large timber trees are found. The casuarina was introduced into the District about forty years ago, and is now largely grown for firewood on the sandy land near the shore.

Nellore has but few attractions for the sportsman seeking big game. Tigers occasionally wander across the border from the Cuddapah hills. Bears exist on the Ghāts and in the Kanigiri and Podili hills, but are not plentiful. Leopards, hunting leopards, *sāmbar*, and spotted deer are to be met with; and antelope, gazelle, and wild hog are fairly common. A quarter of a century ago a few bison were to be found. Snipe, florican, and other feathered game are tolerably plentiful; and the Indian bustard is occasionally seen. Fauna.

The climate is dry and fairly healthy, being subject to no sudden changes of temperature. But the heat is excessive for two or three months of the year, when a scorching westerly wind blows. The sea-breeze makes the tract of country near the coast generally cooler than the inland *tāluks*. The average temperature at Nellore town varies from 77° in January to 94° in May, the thermometer rising on some days to over 112° in the shade. The annual mean for the town is 85°, compared with 83° in Madras city. The District is generally regarded as one of the hottest in the Presidency. Climate and temperature.

Nellore is visited by both the north-east and south-west monsoons. The rainfall is lightest in the inland *tāluks* of Kanigiri and Udayagiri. Next come the coast *tāluks* to the north of the Penner. Farther south, at Nellore and in Rāpūr and Gūdūr, the fall is above the District average. The supply is heavier, generally speaking, along the coast than in the interior, the average at Tada on Pulicat Lake being as much as 41 inches. The average annual fall, based on the statistics from 1870 to 1899, is 36 inches in the south, 32 in the north-east, and 26 in the north-west. The rainfall is, however, capricious and uncertain. It was only 11 inches in the famine year of 1876, while in 1903–4 it amounted to nearly 56 inches, being in many places more than double the average. Rainfall.

Nellore has been fortunate in escaping serious natural calamities other than famine. But destructive storms were recorded in 1820 and 1857; and the heavy floods in the Penner and other rivers in 1852, 1874, 1882, and 1893 caused widespread damage. In the flood of 1882 the Penner rose to the extraordinary height of 28½ feet above its deep bed near the Nellore anicut, while the whole country between Gūdūr and Manubolu was inundated by the overflow of the Kandleru and Venkatagiri rivers. In 1902 and 1903 there were again heavy floods, which caused a great deal of damage to the railway line, roads, and tanks.

Nothing certain is known of the history of Nellore before History.

the times of the CHOLAS. Tamil inscriptions indicate that it formed part of their kingdom till their decline in the thirteenth century A.D. About the middle of that century it seems to have passed to the PĀNDYAS of Madura, who had reasserted their independence, and later to the Telugu Choda chiefs, who ruled it as feudatories of the Kākatīyas of Warangal, now in the Nizām's Dominions. In the next century it became part of the rising Hindu kingdom of Vijayanagar, the capital of which was in the modern Bellary District. Krishna Rāya, the greatest of that dynasty, captured the hill fort of Udayagiri in A.D. 1512, and appointed a governor over it to whom the rest of the District became subordinate, and who continued to hold it even after the disruption of the Vijayanagar empire by the Muhammadans at the battle of Tālikotā in 1565.

English connexion with Nellore dates from 1625, when, after the massacre of Amboyna, the East India Company's servants, headed by Day, the future founder of Fort St. George, formed a trading establishment at Dugarāzupatnam and called it Armagon or Armeghon, after one Arumuga Mudaliyār, the chief man of the neighbourhood, who was of much assistance to them. Armagon, however, was given up in 1639 in favour of the new settlement at Fort St. George, Madras. In 1753 Nellore was under the rule of Najīb-ullah, the brother of the Nawāb of Arcot. In 1757 he rebelled against the Nawāb's authority, and a large force was sent against him. He successfully defended himself with a body of 3,000 men and some aid received from the French at Masulipatam. Shortly after this Colonel Forde, who commanded the English force which was assisting the Nawāb, was recalled to Madras. Najīb-ullah then began to make incursions into the territories of the Nawāb, ending with an attack on the famous Tirupati temple. He was beaten back by an English detachment from Madras, but in 1758 he joined the French under Moracin and succeeded in taking the place. Early in 1759, however, on hearing that the siege of Fort St. George by the French, under Lally, had been raised, he declared himself for the English and put to death all the French with him, excepting their officer, St. Denys. He was reappointed governor of the District, his annual tribute being fixed at 30,000 pagodas. In the middle of the next year, Basālat Jang, the brother of Salābat Jang, the Sūbahdār of the Deccan, threatened the District. But on the appearance of a strong English relieving force under Captain More, he beat a hasty retreat north-west to Cuddapah. On the fall of Pondicherry in 1761, the Nawāb sought English

aid for the reduction of Nellore, the governor of which he had not, despite his recent submission, forgiven. An army under Colonel Caillaud moved against Najīb-ullah early in 1762, took the Nellore fort in February, and soon after made over the District to the Nawāb. During the wars with Haidar (1768–82) the District largely escaped the general devastation. On the assignment of the revenues of the Carnatic by the Nawāb to the Company in 1781, Nellore passed for the first time under direct British management. In 1801 it was, with the rest of the Carnatic, ceded in full sovereignty to the Company by the Nawāb Azīm-ud-daula.

There are very few archaeological remains of interest in Nellore. The most interesting are the ruins of the hill fort at UDAYAGIRI. The architecture of the temples and mosques is usually of the most insignificant character. Not a single fine building is found in the country, though a few large *gopurams* (towers) adorn some of the temples. The large monolithic *stambha* (pillar) at Sangam is worth noting, and there is a similar one at Chundi. Archaeology.

The early history of the District is now being worked out from inscriptions, but the details are not yet fully ascertained. Most of the inscriptions are of the period of the Vijayanagar dynasty, but others, going as far back as the Chālukyas, have been discovered. The earliest catalogued by Sewell in his *Lists of Antiquities* is from a temple in Jummalūru in the Darsi *tahsīl*, and is dated A.D. 1096. Roman coins belonging to the age of Hadrian and Trajan were found in 1786 in a small pot buried under a Hindu shrine. Gold coins of the former emperor were also discovered in 1903 at Tangutūr. When the anicut across the Penner was being constructed, a large amount of laterite had to be quarried in the neighbourhood, and in this deposit were found several coffins, made apparently of burnt clay, embedded in quartz. The bodies within were in a good state of preservation. Spear-heads and other implements were discovered with them.

The population of the District in 1871 numbered 1,376,811; in 1881, 1,220,236; in 1891, 1,463,736; and in 1901, 1,496,987. The effect of the 1876–8 famine is noticeable; and the two scarcities which occurred in the decade 1891–1901 reduced the rate of increase in that period to a low figure, and caused an actual decline, through emigration, in the *tāluks* along the northern and western borders. An idea of the amount of emigration which took place is given by the fact that in 1901 Kistna contained 62,000 persons who had been born in Nellore. The people.

There are 1,758 villages in the District and 10 towns. Of the latter, the chief are the two municipalities of NELLORE (population, 32,040), the head-quarters, and ONGOLE (12,864). The District is made up of thirteen *tāluks* and *tahsīls*, statistics of which, according to the Census of 1901, are shown below:—

Tāluk or *tahsīl*.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Kandukūr	787	1	161	151,417	192	+ 2.0	6,468
Darsi	616	...	118	82,459	134	− 2.6	2,870
Podili	564	...	111	58,937	104	− 13.9	2,327
Kanigiri	1,014	1	188	110,813	109	− 15.6	5,052
Atmakūr	640	...	112	110,906	173	+ 9.6	4,224
Udayagiri	871	...	134	95,173	109	− 5.0	3,324
Nellore	638	2	149	226,383	355	+ 14.4	15,705
Kāvali	548	1	77	87,015	159	+ 4.7	3,614
Gūdūr	910	1	144	144,209	158	+ 6.0	5,918
Rāpūr	596	...	112	70,130	118	+ 14.4	1,977
Venkatagiri	426	1	151	60,861	143	+ 7.9	2,817
Polūr	355	...	139	74,512	210	+ 7.1	3,420
Ongole	796	3	162	224,172	282	− 0.5	13,351
Total *	8,761	10	1,758	1,496,987	171	+ 2.3	71,067

* The area of the new Nellore District is 7,965 square miles, and the population 1,272,815.

The head-quarters of these (except of Polūr, which are at Sūlūrpet) are at the villages and towns from which they are respectively named. Of the total population, 1,356,246, or 90 per cent., are Hindus; 82,886, or 6 per cent., are Musalmāns, who are most numerous in the Nellore *tāluk*; and 53,948, or 4 per cent., are Christians, chiefly to be found in Ongole. Nellore is one of seven Districts in the Presidency in which there are fewer females than males. Telugu is the language of 93 per cent. of the total population and is the prevailing vernacular in every *tāluk*.

Their castes and occupations.

The Telugu castes are in an overwhelming majority in the District. The most numerous of them are the Kāpu and Kamma cultivators, who number respectively 208,000 and 152,000; the Māla field-labourers, 184,000; and the Gollas, 119,000, who are the shepherds of the Telugu country. Perhaps the most interesting community from an ethnological point of view are the Yānādis, a forest tribe, of whom 66,000, or two-thirds of the total for the Presidency, are found in Nellore. They are a primitive people, living mainly in the

south of the District and especially in the jungles of Srīharikota, where they subsist largely by collecting and selling forest produce. They may be described as being still in the hunting-stage of development, and one section of them even now produces fire by friction. In the early years of the last century Government took them under its special protection, and still accords them exceptional treatment in several ways. An interesting account of them, by T. Ranga Rao, will be found in *Madras Museum Bulletin*, No. 2, vol. iv (Madras, 1901).

Nellore contains fewer people who subsist entirely by agriculture than any District except Malabar and the Nīlgiris. The other chief occupations are leather-work and weaving, while petty traders, cattle-breeders, clay bangle-makers (a clay found in Venkatagiri is particularly suitable for bangles), and beggars are more numerous than elsewhere.

Christian missions. Four Christian missions are established in the District. The first to appear on the field, some time in the beginning of the eighteenth century, was the old Jesuit Mission of the Carnatic. This has passed through several crises and shows but little vitality at present, the Roman Catholics in the District numbering only 1,567. The American Baptist Mission dates from 1840, when the Rev. S. S. Day visited Nellore. The mission has prospered; it has 11 stations in the northern portion of the District and its followers number 49,400. It maintains a second-grade college at Ongole, several industrial schools, and numerous primary schools for boys and girls. The Free Church of Scotland Mission has been managing a school for boys at Nellore town since 1848. The Hermannsburg Lutheran Mission commenced operations in 1865. It now possesses eight stations and its adherents number 2,000. The total number of Christians in the District is 53,948, of whom all but 500 are natives.

General agricultural conditions. The coast *tāluks* differ much, both in their scenery and in the nature of their soils, from those in the west of the District. Speaking generally, the soils are poor and gravelly on the western side; but near the sea, where the laterite formation is not found, lie tracts composed of loam and clay of fair quality. From the Pulicat Lake alluvial soil stretches away from Tada nearly to the foot of the Velikonda hills. This range belongs to the well-known Cuddapah formation of quartzite and slate-beds, and along its foot is a narrow strip of land formed from the débris of these rocks and covered with low jungle. The flat plain between it and the sea is underlain for a great width by gneiss and granite with trap, but towards the east the

crystalline rocks below consist of schists. A narrow belt of laterite traverses the District from north to south not far from the sea. The coast-line is marked by a drifting mass of loose sand in ridges or dunes, forming two or three parallel lines. Within this, a strip of alluvial soil formed by the deposits of rivers is found till the laterite is reached. Alluvium is also met with in the river valleys, especially in that of the Penner. All along the banks of the latter river, as far as the Someswaram gap, successive accumulations have covered the surface of the country for a distance varying from 5 to 10 miles. This alluvial soil is a mixture of sand and vegetable matter, and, though of poor quality, is well adapted for growing rice. The most fertile portions of the District are the Penner basin in Atmakūr and Nellore, the tract irrigated by the Penner canal system in the adjoining *tāluks* of Kāvali and Gūdūr, and the heavy black cotton soil land in Ongole, which produces excellent 'dry' crops and extends into the Kandukūr *tāluk*. The laterite belt gives rise to a poor soil, often covered with scrub jungle, which is found in all the coast *tāluks*. The country bordering on the hills on the west is of a more stony and broken character. The worst *tāluks* in the District are Udayagiri and Kanigiri, where water is met with only at a great depth and the soil is of very inferior character. The District receives rain from both the south-west and north-east monsoons, and there are thus two harvests in the year. With the south-west monsoon rains, the early (*punāsa*) and the chief (*pedda*) crops are grown; with the north-east monsoon the late (*paira*) crops. The *punāsa* crops are generally sown from June to September and reaped between December and March, and the *paira* crops are sown from October to January and reaped between February and April. The *punāsa* crops comprise the greater variety, but the *paira* crops cover the larger area.

Chief agricultural statistics and principal crops.

The total area of the District is 8,761 square miles, of which *zamīndāri* and *inām* lands occupy 4,604 square miles. The *zamīndāris* have not been surveyed, and the area for which particulars are on record is only 4,970 square miles. Statistical particulars of this area for 1903-4 are given in the table on the next page, in square miles.

Generally speaking 'wet' crops are most cultivated in the south and east, and 'dry' crops in the west and north of the District. The staple food-crops are rice and *cholam* (*Sorghum vulgare*), which occupy 497 and 567 square miles respectively, or 28 and 32 per cent. of the net area cropped. Next in importance are *cambu* (*Pennisetum typhoideum*), *rāgi* (*Eleusine*

coracana), and the various pulses. Rice is grown extensively in Gūdūr and Nellore, and in portions of Kāvali and Atmakūr. *Cholam* is cultivated throughout the District, the largest area being in Atmakūr, Rāpūr, and Kandukūr. *Variga* (*Panicum pilosum*) is confined to Ongole and Kandukūr, while the greater part of the horse-gram is found in Udayagiri and Kanigiri. Tobacco is raised in small patches here and there throughout the District. Cotton is found chiefly in the four northern *tāluks*. Indigo is grown principally in Ongole and Kandukūr, while castor is an important crop everywhere, except in Gūdūr and Nellore. Sugar-cane is hardly cultivated at all, but jaggery (coarse sugar) is manufactured from the juice of palmyra and bastard date palms in Rāpūr and Kāvali.

Tāluk.	Area shown in accounts.	Forests.	Cultivable waste.	Cultivated.	Irrigated.
Kandukūr	546	50	33	358	34
Kanigiri	439	75	78	167	17
Atmakūr	598	103	95	295	53
Udayagiri	433	149	71	139	18
Nellore	597	37	31	338	211
Kāvali	411	55	60	214	54
Gūdūr	744	85	48	328	114
Rāpūr	573	185	23	245	24
Ongole	629	8	8	482	10
District total	4,970	747	447	2,566	535

Improvements in agricultural practice.

Considerable areas of unoccupied arable land are found in all the *tāluks* except Ongole and Kandukūr, the extent being largest in Gūdūr and Rāpūr. The area of holdings increased by 7 per cent. during the fifteen years after the famine of 1876–8, and since 1891 the increase has been noticeable though slow. No improvements in agricultural practice have taken place during recent years. The ryots do not take much advantage of the provisions of the Land Improvement and Agriculturists' Loans Acts. During the seventeen years ending 1905 only Rs. 1,40,000 has been advanced under the former Act. The money is generally spent in sinking new wells and repairing old ones.

Cattle and sheep.

The Nellore breed of heavy cattle is celebrated throughout the Presidency. The chief centres for raising them are in Ongole and Kandukūr, and the country northwards as far as the Vinukonda and Bāpatla *tāluks* of Kistna District and westward into Kurnool. From this tract the large supplies of draught cattle required for the black cotton soil of the Ceded Districts

and Kurnool are drawn. The stock in the southern *tāluks* are of a lighter and inferior breed; but in many of the villages of Nellore, Gūdūr, and Kāvali the ryots maintain large herds, partly for stock purposes and partly for manuring their fields. Sheep and goats are more numerous in the western tracts than along the coast. They belong to the long-legged kind ordinarily met with in Southern India, and are usually reared for their manure and for their skins, as they give very poor meat.

Irrigation.

Of the total area of *ryotwāri* and 'minor *inām*' land under cultivation, 535 square miles, or about 11 per cent., are irrigated in about equal proportions from canals and tanks, wells taking a proportionately small share in the supply. The only considerable area protected from drought is that irrigated by the Penner canal system, which is supplied from the anicuts across that river at Nellore and Sangam. None of the other rivers of the District is of much use for irrigation. A small area of 800 acres in the north of the Ongole *tāluk* is supplied by the Kistna canals. The Nellore anicut feeds three channels which irrigate land on the southern bank of the river, and the Sangam dam supplies the great Kanigiri reservoir from which much land on the north bank is watered. A project to construct a reservoir on the Manneru to irrigate 17,500 acres of 'dry' land has been recently put in hand as a protective work. The District will also benefit from the Tungabhadra project, if that is sanctioned.

There are in all 626 tanks and 302 channels in the District, which are partly under the Public Works, and partly under the Revenue department. Of the nine Government *tāluks*, Gūdūr, Kāvali, and Nellore are the only ones at all well supplied with tanks. The largest of these sources are those at Nellore, Buchireddipālem, and Allūr in Nellore, at Anantasāgaram and Kaluvāya in Atmakūr, and at Survepalli in Gūdūr. Wells, numbering 17,000 in all, are commonest in the northern and western parts, and each irrigates from 2½ to 3 acres on an average. Water is found only at a great depth in some of the Kanigiri and Udayagiri wells, but these generally irrigate as much as from 4 to 5 acres each.

Forests.

The 'reserved' forests and 'reserved' lands cover 747 square miles, divided into six ranges, each under a range officer. They consist roughly of three classes: the western forests, the central belt, and the coast Reserves. In the central belt the growth is, generally speaking, of poor quality, and the areas 'reserved' usually contain nothing but stunted scrub. In the western hills trees of greater size are met with. The principal forests here lie along the slopes of the Velikonda hills in the

tāluks of Rāpūr, Atmakūr, Udayagiri, and Kanigiri. They are in blocks alternating with *zamīndāri* land belonging to the Venkatagiri and Kālahasti estates. The Nandavanam Reserve in Kanigiri, the Udayagiri Reserve, and the Rāpūr, Velikonda, and Yerrakonda Reserves are the principal of these. In them occur the red-sanders tree (*Pterocarpus santalinus*), the *yegi* or *kino* (*Pterocarpus Marsupium*), *yepi* (*Hardwickia binata*), *billu* or satin-wood (*Chloroxylon Swietenia*), and a few other useful species. The best of the coast forests is in the island of Srīharikota. The more valuable timber trees found there are the *neredu* (*Eugenia Jambolana*), *solagu* (*Pterospermum suberifolium*), and *mushti* (*Strychnos Nux-vomica*). Soap-nut and tamarind-trees also occur in great numbers, and a large area has been planted with casuarina. A tramway 13 miles long has been laid down in the island to assist in removing the wood. The minor produce exported from this tract consists of tamarinds, honey, rattan, soap-nuts, sarsaparilla, strychnine seeds, and myrabolams. All along the coast large plantations of casuarina have been made. In many parts of the District palmyra palms abound.

A portion of the forests is closed to grazing, but to the remaining area cattle are admitted on payment of the prescribed fee. Goats are only allowed to browse in specially selected Reserves. Firewood, the royalty on mica (see below), and grazing fees are the chief sources of forest revenue. The total receipts in 1903-4 amounted to Rs. 1,50,000.

Minerals.

Of the minerals of the District only mica is at present worked to any large extent. Copper was discovered in 1801 in the villages of Garimenapenta and Yarrapalli in Udayagiri. Iron ore is widely distributed, and used to be smelted in native furnaces in several villages in the middle of the last century. Magnetic iron beds of great size occur near the Gundlakamma river in Ongole. Gypsum, in the form of selenite crystals, is found in the marine clayey beds in the northern parts along the Buckingham Canal. Garnet occurs in the Chundi hills, in Pecherlakonda in Udayagiri, and at Saidāpuram in Rāpūr. Large deposits of laterite are found in various localities, such as Kāvali, Nellore, and Talamanchi, and are largely used for making roads and building purposes. Greyish-white crystalline limestone can be obtained near Chundi and Pedārikatla in Kanigiri. A good deal of lime is manufactured from *kankar* and the shell-beds in the backwater deposits. Sandstone is found near Kovūr, north of Nellore, and at Budavāda, Rāzpudi, and Vemavaram in Ongole. The stone near Rāzpudi is in

flaggy beds and is largely quarried for building purposes, being prettily coloured. Greenstone or diorite is found near Jelakapād, and trap dykes near Peramkonda and Ullapuram. Crude saltpetre is manufactured in many villages by lixiviation. The Salt department also manufactures refined saltpetre in the Kanuparti factory. A large quantity of salt is made yearly in the Government factories along the coast. Diamonds are said to have been found near Chejerla.

The history of the mica industry can be traced back 60 or 70 years. It flourished greatly for a time, but now a decline has made itself apparent. In 1900–1, more than a million pounds, valued at 7½ lakhs, was extracted, but in 1903-4 the quantity had fallen to 502,000 lb., valued at less than 4½ lakhs. The majority of the mines consist of large open pits, from which the mineral is removed by manual labour. Only a few contain underground tunnels. The mineral is found in Rāpūr, Atmakūr, Gūdūr, and Kāvali, the largest number of mines being in the first-named *tāluk*. There were 60 mines in the District in 1904, of which 44 are situated on Government land, and the remainder in *shrotriems* and *zamīndāris*. Of these, 56 were working in 1904 as against 36 in 1901. The mica obtained is of good quality, and most of it is exported to London. It is of several kinds, and is either clear or stained, the latter being coloured brown or black owing to the presence of iron and manganese between the planes of cleavage.

Arts and manufactures.

The industries of the District, other than agriculture and cattle-breeding, are on a very small scale. Nellore town was once famous for its cotton cloths and textile fabrics. The cloth now made is generally of the commonest description, though a small amount of better quality is still produced. Blue palampores used to be exported in large quantities to the West Indies, but the trade has died out. A small quantity of rough woollen blankets is produced. Brass and copper utensils are manufactured in several localities. At Udayagiri one family turns out fairly good wood-carving. The construction of country carts with stone wheels is a peculiarity of Kanigiri, and in the same village spinning tools, razors and scissors, and excellent slippers are manufactured. Indigo is grown throughout the District, but no factories are working now, and the dye is manufactured in vats according to native methods. Tanning of skins is carried on to a small extent in many localities.

Commerce.

The extension of railways has affected the trade, which used to come across the Velikondas from the Districts in the interior, but this is almost dead. The principal exports at present are

rice, 'dry' grains, indigo, cotton, *ghī*, salt, oilseeds, condiments, firewood, salted fish, hides, horn, tobacco, lime, palmyra rafters, cloth, and brass and copper vessels. The chief imports are hardware, petroleum in bulk, jaggery, sugar, spices, &c. As already remarked, a large trade is done in cattle. Goats also are a considerable item of commerce in Rāpūr. Both imports and exports are mainly from and to the neighbouring Districts and Madras city. The chief centres of trade are Nellore, Ongole, Gūdūr, Kāvali, Kandukūr, Addanki, Allūr, Venkatagiri, and Sūlūrpet. The only port at which there is any sea-borne trade is Kottapatam. The value of the imports during the four years ending 1901–2 averaged Rs. 10,000, and of the exports Rs. 19,000.

Railways and roads.

The earliest railway to be opened in the District was the extension of the South Indian line from Tirupati to Gūdūr and Nellore, which was constructed in 1887–8, originally on the metre gauge. It passes through Renigunta, Kālahasti, and Venkatagiri, and so affords communication with North Arcot. The section between Gūdūr and Nellore was converted to standard gauge in 1899, and now forms a part of the East Coast line of the Madras Railway. This latter, which traverses Nellore from south to north, was opened for traffic in 1898–9. It enters the District near Arambākam, 38 miles north of Madras city, and after running through it roughly parallel to the coast for 153 miles, leaves it a mile north of Ammanabrolu. The Southern Mahratta Railway line from Guntakal to Bezwāda, which passes through the north-western corner of the District, was completed in 1894.

The total length of metalled roads is 1,010 miles, and of unmetalled roads 148 miles. All these are maintained from Local funds, and avenues of trees have been planted along 435 miles of them. The great northern road runs from north to south, parallel with the railway almost throughout its whole length. The main lines of communication which cross the District from east to west are the Ongole-Cumbum road through Podili, the road through Kandukūr and Kanigiri, that from Kāvali to Udayagiri via Vinjamūr, that from Nellore to Cuddapah via Atmakūr, that from Nellore to the Cuddapah frontier via Podalakūr, and that from Gūdūr to the Rāpūr pass. The road system of the District is by no means fully developed.

The Buckingham Canal is the only navigable water-way. It communicates with the fresh-water high-level canals of the Kistna delta system at Pedda Ganjām, and thus affords uninterrupted communication with Cocanāda on the north and Merkānam in South Arcot on the south.

Famine.

Nellore, with its scanty rainfall and limited means of irrigation, is always liable to famine. The *tāluks* south of the Penner, which receive a fairly good fall and are well supplied with tanks, are better protected from drought than those in the north and west. The District was visited by famine in 1805–7, 1823–4, 1833, 1876–8, and 1891–2. Relief operations had moreover to be started in 1897–8, and again in 1900. During the famine of 1824, 2,000 people are said to have been fed for three months. The northern *tāluks* suffered terribly during the Guntūr famine of 1833, when 10,000 people were being fed daily in Nellore town alone. In 1876–8 there was an almost entire failure of crops, except in parts of the northern *tāluks* and the Venkatagiri *zamīndāri*. At the height of the famine in 1877, the average daily number relieved during twelve months amounted to 82,500. In 1891–2 relief works were opened in the southern and north-western *tāluks*, and the average number relieved amounted to 6,300.

District subdivisions and staff.

The District comprises nine Government *tāluks*[1], each under a *tahsīldār*, and four independent deputy-*tahsīldārs'* divisions or *zamīndāri tahsīls*. The northern portion is generally under a Covenanted Civilian, who administers the *tāluks* of Ongole, Kandukūr, and Kanigiri, and the *zamīndāri tahsīls* of Darsi and Podili. The head-quarters subdivision, which is in charge of a Deputy-Collector, comprises the *tāluks* of Nellore and Kāvali. The Atmakūr subdivision, which is also under a Deputy-Collector, comprises Udayagiri and Atmakūr. The Deputy-Collector at Gūdūr is in charge of Gūdūr and Rāpūr, and the *zamīndāri tahsīls* of Venkatagiri and Polūr or Sūlūrpet. There are stationary sub-magistrates at Nellore, Gūdūr, Ongole, Kandukūr, and Atmakūr; and deputy-*tahsīldārs* at Kota in Gūdūr, Allūr in Nellore, and Addanki in Ongole.

The *zamīndāris* occupy no less than 3,700 square miles, and are four in number. The largest is the VENKATAGIRI ESTATE, which is described in a separate article. The Kālahasti estate of North Arcot owns 190 villages in Udayagiri, Kanigiri, Atmakūr, Kāvali, and Kandukūr. The *peshkash* for the portion of the estate situated in this District is Rs. 80,500. The Chundi *zamīndāri* consists of 35 villages, and pays a *peshkash* of Rs. 20,600. The *zamīndār* of Mutyālapād owns three villages in Kandukūr *tāluk*, the *peshkash* for which is Rs. 2,100.

[1] Since the transfer of the Ongole *tāluk* to Guntūr District the subdivisions have been rearranged. The northern (Kandukūr) subdivision is now under a Deputy-Collector, and the southern (Gūdūr) under a Covenanted Civilian.

Civil justice and crime.

Civil justice is administered by the District Judge, whose head-quarters are at Nellore town, and by District Munsifs at Nellore, Kāvali, Kanigiri, and Ongole. There is no Subordinate Judge in the District, and the appeals from the District Munsifs are disposed of by the District Judge. A large number of *zamīndāri* revenue suits are instituted every year before the revenue courts. The number of these between 1899 and 1901 averaged 2,200 a year, being in excess of the figures for most other Districts. Criminal justice is dispensed by the Sessions Court, the divisional magistrates, and the usual subordinate magistracy. Yerukalas, Yānādis, and the lower castes of the population commit a good deal of theft, and road dacoities are rather common. On the whole, however, the people are quiet and law-abiding.

Land revenue administration.

Little is known of the revenue history of the District under the Hindus. The government share of the crop varied in different localities, and the rates are supposed to have been generally increased by the succeeding Muhāmmadan rulers. 'Wet' lands were usually held on a tenure based on the division of the crop. It is probable, however, that in many cases of occupation of garden and waste lands the tenants paid a fixed customary rent. The collection of revenue was as usual supervised by the village *karnam* (accountant) and headman, the district accountant (called the *sthala karnam*), and the *deshmukh*.

Under the Nawābs of Arcot the country was parcelled out into large divisions, and the right of collecting all the demands of the state on each of these was farmed out to the highest bidder. These lessees generally employed sub-renters, who were often the head inhabitants of villages, and the effects of the system were notoriously bad.

Besides the land revenue, the state used to levy a number of indirect taxes, such as salt tax, *rāhdāri* (or transit) duties, *pullari* (or grazing tax), *mohtarfa* (or profession tax), and various export and import and other duties. The ryots had also to pay the customary fees (*merahs* and *rusūms*) to the village officers and the hereditary *poligārs* and *kāvalgārs*, who were originally responsible for the police administration.

The Company took over the administration of the District temporarily for two years in 1790. Mr. Dighton was appointed the first Collector of Nellore and its dependencies, and Mr. Erskine of Ongole and the Palnād region. The revenue collections at this date never exceeded 3 lakhs of pagodas for Nellore and 85,000 pagodas for Ongole. Neither the Venkatagiri *zamīndāri* nor the *tāluk* of Kanigiri formed part of the

District at that time; they were added subsequently, and it was not till 1863 that the District attained its present shape, Srīharikota Island having been included in it in that year. Nellore was finally handed over to the Company in 1801. Mr. Travers, who was appointed Collector, at once introduced the *ryotwāri* system. The settlement effected under the rules then in force differed in many respects from the present system. No attempts were made to calculate the out-turn or survey the fields accurately. The Government demand was fixed at a customary rate of eleven-twentieths of the gross produce, after deducting 6½ per cent. for fees to village officers. The average rate per acre was Rs. 7 for 'wet,' and Rs. 2-8-0 for 'dry' land. The total assessment for the first five years varied from 16 to 20 lakhs of rupees. These rates were too high, and the system broke down under the pressure of bad seasons. The village rent system was introduced in 1809. The *ryotwāri* system was, however, reverted to in 1821-2, and has continued ever since. Between 1854 and 1858 the rates were reduced by 14 per cent. on 'wet' and 6¼ per cent. on 'dry' land. In 1866 garden land not irrigated with Government water was classed as 'dry.' The *mohtarfa* was abolished in 1861 and the *pullari* tax in 1867. A regular survey of the District, begun in 1861, added 16½ per cent. to the recorded occupied area. The District was settled according to the present system between 1873 and 1875, the land revenue demand being enhanced by Rs. 1,88,000, or 11 per cent. The average assessment on 'dry' land is now Rs. 1-3-6 per acre (maximum, Rs. 5; minimum, 4 annas), and that on 'wet' land Rs. 5-5-7 (maximum, Rs. 10-8; minimum, Rs. 2). The average extent of a holding is 9½ acres. The District is now being resurveyed, and it is proposed to revise the settlement immediately.

The revenue from land and the total revenue in recent years are given below, in thousands of rupees:—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue .	28,46	32,25	32,17	31,61
Total revenue .	31,91	38,52	40,70	43,36

Owing to the transfer of the Ongole *tāluk* to the new District of Guntūr, the land revenue demand is now Rs. 21,57,000.

Local boards.

The local affairs of the District are managed by the District board and the four *tāluk* boards of Ongole, Nellore, Gūdūr, and Atmakūr, corresponding to the four administrative sub-

divisions mentioned above. The total expenditure of these bodies in 1903-4 was about 4 lakhs, the chief item being as usual the up-keep of roads and buildings. Of their income, $2\frac{1}{2}$ lakhs was derived from the land cess. There are fifteen Union *panchāyats*, which look after the sanitary and other needs of their respective villages, besides two municipalities.

Police and jails.

The District Superintendent of police resides at Nellore town and has general control over the force throughout the District. An Assistant Superintendent at Ongole is in immediate charge of the *tāluks* in the north. There are in all 94 police stations, and the force numbers 989 constables, under 18 inspectors. The strength of the reserve is 54 men. The rural police consists of 1,004 *talaiyāris*, working directly under the village headman. The District jail at Nellore is under the superintendence of the District Surgeon. It is an old building, with accommodation for 231 males and 14 females, as well as 27 persons in the hospitals. There are 15 subsidiary jails in the District, at the head-quarters of the *tahsīldārs* and deputy-*tahsīldārs*, with accommodation for 255 persons.

Education.

Nellore stands fifteenth among the twenty-two Districts of the Presidency in regard to the literacy of its population, of whom 4·8 per cent. (8·9 males and 0·6 females) were able to read and write in 1901. Education is most advanced in Nellore and Ongole, and most backward in Rāpūr and Udayagiri. Progress has been considerable in recent years. In 1880-1 the total number of pupils under instruction was 10,196; by 1890-1 it had risen to 21,836, and by 1900-1 to 26,679; in 1903-4 it was 29,425, including 5,205 girls. In 1904 the District contained 1,117 educational institutions of all kinds. Of the 910 classed as public, 12 were managed by the Educational department, 80 by local boards, 4 by municipalities; 436 received grants-in-aid, and 378 were unaided but conformed to the rules of the department. They included one college, 19 secondary, 883 primary, and 7 training and special schools. Of the male population of school-going age 17 per cent., and of the female population 5 per cent., were in the primary stage of instruction. Among Musalmāns, the corresponding figures were 32 and 4. Of the Māla and Mādiga classes, the two most depressed communities in the District, 2,112 boys and girls were under instruction in 318 schools in 1903-4. The missions have done much to encourage education among these people. The American Baptist Mission maintains a college at Ongole which teaches up to the F.A.

standard. Other important institutions are the United Free Church Mission high school and the Venkatagiri Rājā's high school at Nellore. The total expenditure on education in 1903-4 was Rs. 1,77,000, of which Rs. 51,000 was derived from fees. Of the total, 62 per cent. was devoted to primary schools.

Hospitals and dispensaries.

There are 10 hospitals and 17 dispensaries, which are situated at the principal towns. The medical institutions (four in all) at Nellore and Ongole are managed by the two municipalities at those places. A maternity hospital was built at Nellore to commemorate the Jubilee of Queen Victoria. The various Local fund hospitals contain accommodation for 28 in-patients, and there is room for 78 more in the municipal institutions. In 1903 the total number of cases treated was 260,647, of whom 1,112 were in-patients, and 4,123 operations were performed. Local and municipal funds met the greater part of the expenditure, which amounted to Rs. 43,000. Of this sum establishment charges absorbed Rs. 24,000, and Rs. 13,000 was spent on medicines.

Vaccination.

The District is rather backward with respect to vaccination, the number of persons successfully treated in 1903-4 being only 24 per mille of the population, as against a mean of 30 for the Presidency. Vaccination is compulsory in the two municipalities of Nellore and Ongole, and in seven of the Unions.

[For further particulars of Nellore District see the *Manual of the Nellore District*, by J. A. C. Boswell (1873), and *Inscriptions on Copperplates and Stones in the Nellore District*, by A. Butterworth and V. Venugopāl Chetti (Madras, 1905).]

Kandukūr Subdivision.—Subdivision of Nellore District, Madras, consisting of the *tāluks* of KANDUKŪR and KANAGIRI and the *zamīndāri tahsīls* of DARSI and PODILI.

Kandukūr Tāluk.—Coast *tāluk* of Nellore District, Madras, lying between 14° 58′ and 15° 30′ N. and 79° 38′ and 80° 5′ E., with an area of 787 square miles. The population in 1901 was 151,417, compared with 148,475 in 1891. It contains one town, KANDUKŪR (population, 9,569), the headquarters, and 161 villages. The demand on account of land revenue and cesses amounted in 1903-4 to Rs. 3,58,000. The *tāluk* may before long be well supplied with irrigation, as it will be commanded by the great Tungabhadra-Penner and Kistna projects. The Mānneru with its affluent, the Upputeru, the Paleru, the Mūsi, and the Yelikeru are the chief rivers. The Manneru feeds the Karedu tank, but the others are at present undeveloped as sources of irrigation.

Darsi Tahsīl.—*Zamīndāri tahsīl* in the north of Nellore District, Madras, lying between 15° 33′ and 16° 1′ N. and 79° 19′ and 79° 58′ E., with an area of 616 square miles. The population in 1901 was 82,459, compared with 84,631 in 1891. The number of villages is 118, of which Darsi is the head-quarters. The *tahsīl* is a part of the VENKATAGIRI ESTATE. The aspect of the country is remarkably bare and barren. Trees are few, and the monotony is broken only by occasional stony hills. There is little irrigation, the chief food-grains being 'dry' crops such as *cholam*, *korra*, *variga*, *aruga*, *cambu*, and *rāgi*. Two rivers, the Gundlakamma and the Mūsi, flow through a portion of it. The climate is very hot, and there is usually a scarcity of water in the dry season.

Podili Tahsīl.—*Zamīndāri tahsīl* in the north-west of Nellore District, Madras, lying between 15° 23′ and 15° 45′ N. and 79° 12′ and 79° 49′ E., with an area of 564 square miles. The population in 1901 was 58,937, compared with 68,400 in 1891. It contains 111 villages, of which Podili is the head quarters. The *tahsīl* is a part of the VENKATAGIRI ESTATE. There is a temple on the Velikonda hills near Garladinne, where a largely attended festival is held annually. These hills run through the west of the *tahsīl*. Of other scattered elevations the most conspicuous is a fine range some miles south of Podili village. Two rivers, the Mūsi and the Gundlakamma, run through Podili and empty themselves into the Bay of Bengal.

Kanigiri Tāluk. — *Tāluk* of Nellore District, Madras, lying between 15° 1′ and 15° 35′ N. and 79° 5′ and 79° 41 E., with an area of 1,014 square miles. It is bounded on the south by the Udayagiri *tāluk* and on the east for some distance by the Mālakonda range of hills. The population, which was 131,222 in 1891, had fallen in 1901 to 110,813, a succession of bad seasons having caused large numbers to emigrate. The demand on account of land revenue and cesses amounted in 1903–4 to Rs. 65,000. The *tāluk* contains one town, KANIGIRI (population, 5,528), the head-quarters, and 188 villages. Only 34 of the latter belong to Government, and 22 are *shrotriems*, interspersed among the more numerous *zamīndāri* villages of the KĀLAHASTI and VENKATAGIRI ESTATES. The head-quarters, formerly at Mogallūr, a *zamīndāri* village, were removed to Kanigiri in 1879. Besides the *tāluk* office, there is a District Munsif's court at this place. The general aspect of the country is forbidding. Treeless plains of red sand stretch in all directions. At Kanigiri there is a block of rocky

hills. In the north-western corner near Nandanavanam some remarkable sandhills from 20 to 30 feet in height spread over a considerable area. They are probably formed of detritus from the neighbouring hills drifted by the force of the fierce land-wind. Wells are fairly numerous. The Paleru, the Manneru, and their affluents, rising among the ranges of hills to the west, drain the *tāluk*. *Rāgi* and *cambu* are the staple food-crops. *Aruga* is also grown and is preferred to the others as a food. Rice is imported. Education is backward, and not a few villages are to be found where the village accountant is the only person who can read and write. The *tāluk* is wanting in facilities for irrigation. There are a few tanks, of which nine belong to Government, but none of them commands any considerable area. Various irrigation projects are under consideration, and the Hājipuram project, to impound the freshes of the Dommaleru, is in progress.

Atmakūr Subdivision.—Subdivision of Nellore District, Madras, consisting of the ATMAKŪR and UDAYAGIRI *tāluks*.

Atmakūr Tāluk.—Inland *tāluk* of Nellore District, Madras, lying between 14° 26′ and 14° 49′ N. and 79° 15′ and 79° 49′ E., with an area of 640 square miles. The population in 1901 was 110,906, compared with 101,154 in 1891. The number of villages is 112, of which Atmakūr is the head-quarters. The demand on account of land revenue and cesses amounted in 1903–4 to Rs. 3,04,000. The *tāluk* is generally flat, though studded with isolated hills; the Velikonda range runs along its western border. There are no true forests, but the western hills are 'reserved' and low scrub jungle abounds. Two rivers, the Penner and the Boggeru, aided by two smaller streams, the Keta Manneru and Biraperu, drain the *tāluk*. The climate is dry, with a rainfall of only 18 inches, but the soil is fairly productive. *Cholam*, rice, *rāgi*, *aruga*, *cambu*, and horse-gram are generally grown, *cholam* occupying 57 per cent. of the cultivated 'dry' area. Indigo and cotton are also raised to some extent. The river Penner, forcing its way through the Velikondas from Cuddapah District, enters the *tāluk* at Somasila and runs through it for a distance of 35 miles, dividing it into two unequal portions. It contains 83 Government irrigation tanks, two of which (one at Anantasāgaram and the other at Kaluvāya) are good examples of ancient Hindu engineering.

Udayagiri Tāluk.—*Tāluk* of Nellore District, Madras, lying between 14° 35′ and 15° 7′ N. and 79° 5′ and 79° 38 E. Its area, including *zamīndāri* villages, is 871 square miles, of

which Government villages occupy 360 square miles. The population in 1901 was 95,173, compared with 100,227 in 1891. The *tāluk* contains 134 villages, the head-quarters being at UDAYAGIRI (population, 4,021). The demand on account of land revenue and cesses amounted in 1903–4 to Rs. 74,000. The extreme north and north-west of the *tāluk* are occupied entirely by the villages of the KĀLAHASTI ESTATE. The west is hilly; and the soil is stony and sterile towards the hills, becoming more fertile towards the east. The Manneru and its affluent the Pillaperu drain the north, and the Boggeru with its affluents the south. The beds of these streams are low, and they afford no facilities for direct irrigation. It is in contemplation to restore the Gandipālem tank, a large reservoir fed by the Pillaperu. The chief sources of water-supply are wells, of which 1,942 are in repair. These are deep square pits excavated in stony strata, which cannot be depended upon in years of short rainfall. The 150 wells on the river banks afford better irrigation. The tanks, numbering 41, are rain-fed and afford but a precarious supply. The prohibitive cost of wells, and the absence of demand for the grains (*rāgi* and *cambu*) which are usually irrigated from them, prevent any appreciable increase in their number. Owing to the want of facilities for irrigation, the natural poverty of the soil, and the uncertain rainfall, the *tāluk* is subject to frequent scarcities, and emigration is common. The crops usually grown are *cambu*, castor, cotton, indigo, and *aruga* with the south-west monsoon; and rice, *cholam*, and *rāgi* with the north-east rains. Tobacco is raised by well-irrigation for local consumption.

Nellore Subdivision.—Subdivision of Nellore District, Madras, consisting of the NELLORE and KĀVALI *tāluks*.

Nellore Tāluk.—*Tāluk* in the centre of the District of the same name, Madras, lying between 14° 21′ and 14° 46′ N. and 79° 43′ and 80° 11′ E., and bounded on the east by the Bay of Bengal. Its area is 638 square miles, and the population in 1901 was 226,383, compared with 197,912 in 1891. The *tāluk* contains two towns, NELLORE (population, 32,040), the head-quarters of both the *tāluk* and the District, and ALLUR (7,527); and 149 villages. The demand on account of land revenue and cesses amounted in 1903–4 to Rs. 8,55,000. The Penner river separates the *tāluk* into two portions, and the Paideru and the Maldevi drain the northern half. There is an anicut across the Penner at Nellore town, and another at Sangam, built in 1882–6. From the latter three main channels irrigate the southern portion of the *tāluk*;

while another channel from the former feeds an immense reservoir, known as the Kanigiri tank, from which several minor irrigation channels supply the northern portion. The *tāluk* is distinguished from other parts of the District by the prevalence of wide alluvial deposits. More than three-fourths is included in the Penner delta, and rice cultivation is extensively carried on there.

Kāvali Tāluk.—*Tāluk* of Nellore District, Madras, lying between 14° 40′ and 15° 4′ N. and 79° 36′ and 80° 7′ E., and bounded on the east by the Bay of Bengal. Its area is 548 square miles, about one-third of which is *shrotriem* and *zamindāri*. The population in 1901 was 87,015, compared with 83,109 in 1891. It contains 77 villages besides the head-quarters, KAVALI (population, 8,635). The demand on account of land revenue and cesses amounted in 1903–4 to Rs. 2,41,000. The *tāluk* is generally flat, but contains a few isolated hills, while to the west and north-west are extensive low jungles, in parts very dense. The soil is poor, and large beds of laterite are frequently met with. The *tāluk* is drained by the Upputeru (an affluent of the Manneru), the Gundālavāgu, the Ubbalivāgu, and the Pillivāgu. There are 35 tanks under the charge of the department of Public Works, and 31 minor irrigation works. With a few exceptions these are rain-fed, and the supply is therefore not very certain. Irrigation from the Sangam dam across the Penner has been extended to two villages. 'Wet' cultivation is most common in the eastern portion. The consumption of rice has much increased of late years. Along the sea-coast large tracts have been planted with palmyra palms and casuarina.

Gūdūr Subdivision.—Subdivision of Nellore District, Madras, consisting of the *tāluks* of GŪDŪR and RĀPŪR and the *zamīndāri tahsīls* of VENKATAGIRI and POLŪR.

Gūdūr Tāluk.—*Tāluk* of Nellore District, Madras, lying between 13° 29′ and 14° 25′ N. and 79° 43′ and 80° 16′ E., with an area of 910 square miles. The population in 1901 was 144,209, compared with 136,009 in 1891. It contains one town, GŪDŪR (population, 17,251), the head-quarters, and 144 villages. The demand on account of land revenue and cesses amounted in 1903–4 to Rs. 4,39,000. Included in it is SRĪHARIKOTI ISLAND, formerly part of Madras District. On the shore stands ARMAGON, the site of one of the earliest English settlements on the Coromandel coast. The *tāluk* is low-lying, being nowhere more than 400 feet above the sea. The coast villages contain many palmyra trees, large casuarina

plantations, and wide areas of swampy land. In the west, towards Rāpūr and Venkatagiri, the soil becomes hard and rocky; but in the east, along the shore, it consists of a sandy subsoil, with either clay or black soil at the surface. The Swarnamukhi, the Kandleru, and the Saidāpuram are the chief rivers. Indigo was manufactured to a considerable extent, but the industry has now greatly declined owing to the fall in the price of the natural dye.

Rāpūr Tāluk.—*Tāluk* in the south-west of Nellore District, Madras, lying between 14° 7′ and 14° 31′ N. and 79° 21′ and 79° 51′ E., with an area of 596 square miles. The population in 1901 was 70,130, compared with 61,311 in 1891. The *tāluk* contains 112 villages, of which Rāpūr is the head-quarters. The demand on account of land revenue and cesses amounted in 1903–4 to Rs. 1,55,000. The Velikonda range forms the western boundary, and Penchalakonda (3,635 feet), one of the peaks in this, is the highest point in the District. There are also some scattered hills. The Kandleru and Venkatagiri rivers, which rise in the Velikondas, drain the *tāluk*. The former runs through the centre and empties itself into the Kistnapatam backwater after passing through Gūdūr. It is navigable up to 25 miles from the sea at all seasons for boats drawing not more than 4 or 5 feet. The *tāluk* possesses many 'reserved' forests, but they mostly contain very poor growth. The soil is black and loamy in parts, but there is much sterile stony land. Wells are deep and costly, and irrigation is mostly from rain-fed tanks. The Tungabhadra-Penner irrigation project, which is now under investigation, would command a good deal of the *tāluk*. *Cholam*, *rāgi*, *cambu*, rice, tobacco, and chillies are the principal crops. Timber and tanning and dyeing barks are the chief natural products.

Venkatagiri Tahsīl.—*Zamīndāri tahsīl* in the south-west of Nellore District, Madras, lying between 13° 50′ and 14° 11′ N. and 79° 27′ and 79° 55′ E., with an area of 426 square miles. The population in 1901 was 60,861, compared with 56,387 in 1891. The *tahsīl* contains one town, VENKATAGIRI (population, 13,302), the head-quarters, and 151 villages. To the west rise the Velikonda hills, which form the boundary between the Districts of Cuddapah and Nellore.

Venkatagiri Estate.—An estate in Nellore District, Madras, consisting of the two southern *zamīndāri tahsīls* of Polūr and Venkatagiri and the two northern *tahsīls* of Podili and Darsi, besides 176 villages scattered through the Gūdūr, Kanigiri, and Ongole *tāluks*.

According to the family records, the origin of the *zamīndāri* is traced to one Chevi Reddi, a cultivator in the Ammanabolu village of Telingāna, who is said to have discovered a hidden treasure of 9 lakhs while ploughing. With the wealth thus obtained, the lucky cultivator gained access to the court of the king of Warangal, where his descendants flourished for eighteen generations. About the year 1600 one of the members of the family was commissioned by the Warangal Rājā to subdue Jagga Rāju, who was holding the fort at VENKATAGIRI. Being successful, he received the fort, which thenceforth became, and still is, the head-quarters of the family. The consolidation of the *zamīndāri* as now constituted followed in about 1700, on the demise of two of the three sons of Bangāru Yachama Nāyudu, between whom the *tāluks* had been divided. The *peshkash* of the *zamīndāri*, including cesses, amounted in 1903-4 to Rs. 4,26,000. The estate is held under a *sanad* granted in 1802 in the time of the second Lord Clive. The *zamīndār* has the hereditary title of Rājā.

Polūr (or *Sūlūrpet*).—*Zamīndāri tahsīl* in the southern corner of Nellore District, Madras, lying between 13° 30′ and 13° 59′ N. and 79° 51′ and 80° 9′ E., and bounded on the east by the Bay of Bengal. Its area is 355 square miles, and the population in 1901 was 74,512, compared with 69,593 in 1891. It contains 139 villages, the head-quarters being Sūlūrpet. There is only one river of importance, the Swarnamukhi, which supplies some of the tanks. The soil is generally sandy or gravelly, and the principal crop is rice, though *rāgi* and *cambu* are also grown. Irrigation is mostly from rain-fed tanks.

Allūr.—Town in the north of the Nellore *tāluk* of Nellore District, Madras, situated in 14° 41′ N. and 80° 3′ E. Population (1901), 7,527, chiefly agriculturists. It is the head-quarters of a deputy *tahsīldār*. The land revenue is the largest in the District, the demand being Rs. 53,000. The Iskapalli salt factory is situated on the coast 5 miles distant.

Armagon (*Armeghon*, *Armugam*).—Village in the Gūdūr *tāluk* of Nellore District, Madras, situated in 13° 59′ N. and 80° 10′ E., on the Bay of Bengal. The place is now sometimes called Monapālem, from a neighbouring village with a lighthouse, and sometimes Dugarāzupatnam, from another village where open communication with the sea can be maintained. It is said to be named after one Arumuga Mudaliyār, by whose assistance one of the earliest English settlements on the Coromandel coast, consisting of a factory defended by twelve pieces of cannon, was established in 1625. A lighthouse is maintained

at Monapālem in 13° 53′ N. and 80° 8′ E., which gives a flash every 20 seconds visible 14 miles away, and warns vessels off the Armagon shoal, 6 miles from shore. The shoal is about 10 miles long, and the shallowest patch on it has $1\frac{3}{4}$ fathoms of water, and lies from $3\frac{1}{2}$ to $5\frac{1}{2}$ miles east by north of the lighthouse. The still water inside the shoal is called Blackwood's harbour, after Sir Henry Blackwood, once admiral on this coast, who had it charted, and suggested that it would make a practicable harbour. Seven miles north of Armagon lighthouse is Dugarāzupatnam, a small village of 2,388 inhabitants on the BUCKINGHAM CANAL. Being at the mouth of an entrance to the sea from the backwater in front of which Armagon stands, it was apparently the port of Armagon, and the two places are often spoken of as identical. Near by are the remains of an old fort built by the East India Company.

Gūdūr Town.—Head-quarters of the subdivision and *tāluk* of the same name in Nellore District, Madras, situated in 14° 9′ N. and 79° 52′ E., at the junction of the Madras and South Indian Railways. The population, according to the Census of 1901, was 17,251; but the three villages (Chennūr, Vindūr, and Manubolu) then included in its Union have since been separated and Chillakūr included instead. The population of Gūdūr proper may be taken at about 9,000. Agriculture is the chief occupation of the people. Mats are made to a small extent in Vīrareddipalli, one of its hamlets. Rice and chillies are exported in small quantities.

Kandukūr Town.—Head-quarters of the *tāluk* of the same name in Nellore District, Madras, situated in 15° 13′ N. and 79° 54′ E., about 9 miles west of Singarāyakonda railway station and 13 miles from the sea. Population (1901), 9,569, mainly agriculturists. Two ancient temples here are dedicated to Vishnu and Siva.

Kanigiri Town.—Head-quarters of the *tāluk* of the same name in Nellore District, Madras, situated in 15° 25′ N. and 79° 31′ E. Population (1901), 5,528. The town has a large market, to which cotton goods and iron are imported from Madras, chillies and tobacco from Kistna, and sundry articles from the Ceded Districts. Spinning instruments, razors, and scissors are manufactured and largely exported; the slippers made here are considered superior to those in other parts of the District; and the granite of the Kanigiri hill supplies excellent building-stone. This hill rises to a considerable height on the north of the town, forming a feature in the landscape for many miles round. On it is a rugged table-land about

a square mile in area, where a town is said to have once stood. It is supposed to have been fortified by one of the Gajapatis of Orissa and designated Kanakagiri Vijayamārtānda Durgam, combining the name of the hill with that of the deity to whom a temple on it was dedicated. The remains of some of the defences still stand. The place was taken in the sixteenth century by Krishna Deva of Vijayanagar, and played a conspicuous part in local feuds until it was destroyed by Haidar Alī.

Kāvali Town.—Head-quarters of the *tāluk* of the same name in Nellore District, Madras, situated in 14° 55′ N. and 80° E. Population (1901), 8,635. It contains a District Munsif's court and the usual offices.

Nellore Town.—Head-quarters of the District and *tāluk* of the same name, Madras, situated in 14° 27′ N. and 79° 59′ E., on the right bank of the Penner river, on the great northern road from Madras to Calcutta and on the East Coast Railway, 109 miles from Madras city. The population in 1901 was 32,040, consisting of 25,229 Hindus and Animists, 5,786 Musalmāns, and 1,025 Christians.

The earliest chieftain of the place is said to have been one Mukkanti, who ruled in the eleventh century as a tributary of the Chola kings. The next whose name has been preserved by tradition is Siddhi Rājā, who held it in the twelfth century. Power passed from the Cholas to the Warangal Ganpatis, then to the Muhammadans and local chiefs, till Krishna Deva of Vijayanagar subdued the country about 1512. The town first attained historical importance in the eighteenth century, when the English and the French were contesting the supremacy of Southern India. It formed part of the dominions of the Nawāb of the Carnatic, and possessed strategic importance as commanding the northern high road and the passage of the Penner. Its fort, portions of the wall and ditch of which are still visible, was probably built about this time. In 1753 it was the apanage of Najīb-ullah, a brother of the Nawāb Muhammad Alī whom English support had placed on the throne. He was driven out of Nellore in that year by Muhammad Kamāl, a military adventurer. This man threatened to sack the temple at Tirupati, which had been pledged to the English, but was eventually defeated and taken prisoner by them. In 1757 Najīb-ullah rebelled against the authority of his brother, the Nawāb. An army of 10,000 men was sent against him, including a European contingent under Colonel Forde. Najīb-ullah left the town to be defended by a garrison

of 3,000 men, assisted by 20 French from Masulipatam. After a few days' bombardment, a breach was made in the mud wall, but the storming party, consisting mainly of the British contingent, was repulsed with loss. Najīb-ullah remained in arms throughout the following year; but when the French under Lally withdrew from before Madras in 1759, he submitted and was reappointed governor of the country. During the wars with Haidar Alī, Nellore to a great extent escaped the general devastation. In 1790, on the breaking out of the war with Tipū Sultān, the British resolved to undertake the direct management of the revenues of the Carnatic which had long been pledged to them by the Nawāb, and Mr. Dighton was appointed the first Collector of Nellore. At the conclusion of the peace with Tipū in 1792 the administration was restored to the Nawāb, but it was permanently assumed by the British in 1801.

Besides the usual administrative offices, Nellore possesses a small District jail, in which the convicts are employed in gardening and weaving. The houses of the European residents are on the south of the native town along the bank of a large tank, on the farther side of which rises the temple-crowned hill of Narasimhakonda. Nellore was constituted a municipality in 1866. The receipts and expenditure during the ten years ending 1902–3 averaged Rs. 44,000. In 1903–4 the receipts were Rs. 55,000, the chief sources being the house and land taxes (Rs. 17,700) and tax on vehicles and animals (Rs. 6,000); while the main items of expenditure were conservancy (Rs. 14,000), medical needs (Rs. 10,000), and roads and buildings (Rs. 7,000). The municipal hospital contains beds for 40 in-patients. Surveys and levels have been taken for a scheme for supplying the place with water. The average rainfall is about 36 inches. In the hot season, temperatures of 112° and over in the shade are not uncommon.

Nellore is not of much industrial importance, the only factories or crafts being a rice-husking mill, a private workshop in process of development, and the dyeing of cloths. The chief educational institutions are the United Free Church Mission high school and the Venkatagiri Rājā's high school, both educating up to the matriculation standard. The former was established in 1841 and the latter in 1876. The American Baptist Mission and the Roman Catholic Mission, both of which have been long settled in the town, also maintain several schools.

Srīharikota.—Island in the Gūdūr *tāluk* of Nellore District, Madras, lying between 13° 29′ and 13° 59′ N. and 80° 11′ and

80° 21′ E. Population (1901), 11,149. It is a long, low bank of alluvial deposit, rising a few feet above sea-level, 35 miles in length and 6 miles wide at its broadest part. It is washed on the east by the Bay of Bengal and on the west by the PULICAT LAKE, and stretches from Coromandel on the south to Dugarāzupatnam on the north, where it is separated from the mainland by a narrow channel. The island, which was transferred from the District of Madras City in 1865, contains eighteen Government villages, one *shrotriem*, and one *zamindāri* village. It is covered with dense jungle, which forms one of the chief sources of supply of firewood for the Madras market, the wood being transported by a tramway 13 miles long and carried to Madras by the Buckingham Canal. Casuarina grows well on the sandy soil. The climate is unhealthy, and there is much elephantiasis. Along the Pulicat Lake a narrow strip of land is under rice, and round the huts scanty crops of *rāgi* are raised. The island is one of the homes of the Yānādis, a forest tribe numerous in this District.

Udayagiri Village.—Head-quarters of the *tāluk* of the same name in Nellore District, Madras, situated in 14° 53′ N. and 79° 18′ E. Population (1901), 4,021. It was formerly a place of importance. The walls which once encircled the town have almost entirely disappeared, but much of the fortifications on the neighbouring hill to the west still remains. The fort originally consisted of thirteen separate strongholds, eight on the hill and five below. Inside the walls are the remains of tombs, temples, and palaces. Part of the hill is so precipitous as to be inaccessible, the cliffs being in places nearly 1,000 feet high, and every path up was commanded by lines of defences. Tradition states that in the fourteenth century it was the capital of a kingdom founded by Lāngūla Gajapati. It fell into the hands of Krishna Deva of Vijayanagar in 1512. Afterwards it was nominally under the Golconda dynasty, but was held by semi-independent chiefs. On the top of the hill is a mosque, in which are two Persian inscriptions referring to its construction in 1660 by Shaikh Husain in the reign of Sultān Abdullah of Golconda and to the planting of a garden near by. The *jāgīr* of Udayagiri was granted by the Nawābs of Arcot to a certain Mustafa Alī Khān. The last of his descendants was deported to Chingleput in 1839 for treasonable conduct, and the *jāgīr* was resumed. The town is supplied with fresh water by an open channel from the springs on the hill. It contains hospitals and schools maintained by the local board and the American Baptist Mission.

Venkatagiri Town.—Town in Nellore District, Madras, situated in 13° 58′ N. and 79° 35′ E. It is the chief town of the *zamīndāri* and *tahsīl* of the same name, and the head-quarters of a deputy-*tahsīldār*. Population (1901), 13,302. The town was destroyed by Haidar Alī, because the Venkatagiri Rājā sided with the British in the great struggle in the Carnatic; but it was rebuilt on a large scale after the establishment of British authority. It is noted for the manufacture of fine laced cloths.

CUDDAPAH DISTRICT

Boundaries, configuration, and hill and river systems.

Cuddapah District (written 'Kurpah' in the old records, which still survives as the trade-name of Madras indigo).—The south-easternmost of the CEDED DISTRICTS in the Madras Presidency, lying between 13° 27′ and 15° 14′ N. and 77° 51′ and 79° 29′ E., with an area of 8,723 square miles. *Kadapa* means a 'gate' in Telugu, and the name is said to be derived from the fact that Cuddapah town is the gate to the holy places at TIRUPATI. The District is bounded on the north by Kurnool, on the east by Nellore, on the south by North Arcot and Mysore territory, and on the west by Anantapur. It consists of two well-marked natural divisions. The four south-western *tāluks* form part of the Mysore plateau and stand at a greater elevation (1,500 to 2,250 feet) than the rest of the District. Separated by the Seshāchalam and Pālkonda Hills, the other *tāluks* lie at a lower level. The conditions of these two tracts differ widely. The upland *tāluks* are mainly composed of red, infertile soil, broken up by numberless groups of small rocky hills. Much of the low country is made up of a wide expanse of black cotton soil, backed by the brown line of the hills and dotted here and there with clumps of *babūl* trees and small rocky elevations, which are covered with verdure in the wet season and in their most sheltered nooks, but for much of the year are burnt up and arid. Except the Pālkonda range, which thus divides the District, the hills in Cuddapah are usually too disconnected to have received any specific names or largely to affect the conformation of the country. The only exceptions are the spurs of the Nallamalais, which run down from Kurnool into the *tāluks* of Badvel and Proddatūr in the extreme north.

The whole of the District drains into one river, the Penner. This runs from west to east below the Pālkonda Hills through the low-country *tāluks*, and passes into Nellore District by the gap in the Eastern Ghāts at Somasila. Its chief tributaries in the lower *tāluks* of Cuddapah are the Sagileru, which flows through Badvel and Sidhout, and the Kunderu, which passes through Proddatūr. The four upland *tāluks* drain into three main streams—the Cheyyeru, the Pāpaghni, and the Chitrāvati

—which eventually find their way through gaps in the Pālkonda Hills and join the Penner in the low country. Except the Cheyyeru, these streams have their original sources outside the District. The Chitrāvati rises near Nandidroog in the State of Mysore, and for most of its course runs through Anantapur District. It joins the Penner in the north-westernmost corner of Cuddapah District in the Jammalamadugu *tāluk*. The Pāpaghni ('sin-destroyer') also has its source in Mysore, runs across the upland part of Cuddapah nearly due north, flows through the large tank of Vyāsasamudram at Kandukūr, and thence through the Pālkonda Hills near VEMPALLE to join the Penner in the Cuddapah *tāluk*. The Kunderu rises in Kurnool, and drains the great cotton soil plains which stretch between Nandyāl in that District and Proddatūr in Cuddapah. The Sagileru springs from the higher peaks of the Nallamalai Hills not far from Cumbum in Kurnool District, and in Cuddapah flows in a deep channel along a narrow valley. The Cheyyeru rises within Cuddapah District in the Vāyalpād *tāluk*, and after being fed by several small jungle streams, the principal of which is the Bāhudānadī, flows through the Pālkonda Hills and the rich valley which once formed the petty chiefship of Chitvel, and falls into the Penner not far from the eastern limit of the District. None of these streams is in any sense perennial. They are filled from the drainage of bare, rocky country devoid of heavy forests, and consequently become torrents for a few days and then as suddenly dwindle to thin trickles of water flowing through wide sandy beds. The gorge of the Penner at Gandikota and the narrow pass by which the Cheyyeru flows down to the low country are both famous for the beauty of their scenery.

Geology.

Geologically, the District is of considerable interest. The rocks of the upland *tāluks* differ widely from those of the rest of the country. They are mainly Archaean granites and gneisses, and often, as at Horsleykonda and among the hills west of Madanapalle, run up into masses of much beauty and boldness. Crossing them are three narrow bands of the younger Dhārwār series, all running nearly due south; and intruded through them are an extraordinary number of dioritic trap dykes, which form a striking network of black ridges, devoid of all vegetation, seaming the face of the country in every direction. The low country in the north-west of the District, below the Pālkonda Hills, is occupied by much younger azoic sedimentary rocks belonging to the Cuddapah and Kurnool series. The base of the Cuddapah system occurs

along the southern edge of the Pālkonda Hills. Here in one spot is exposed a great thickness of quartzites, called the Guvalcheruvu quartzites, forming a fine scarp over 30 miles long. These are overlaid by a series of slaty beds, known as the Vempalle slates, which in their turn are covered by the Nagari quartzites and the great Pullampet slate series. More quartzites cap the Pālkonda Hills as they run southward out of the District, forming the picturesque red scarp which overlooks the upland *tāluks*; and yet others crown the section of the Eastern Ghāts, sometimes called the Velikonda hills, which limits the District on the east. The rocks of the Kurnool system, which rest upon and cover up the Cuddapah rocks in the valley of the Kunderu, consist of limestones and overlying shales of the Jammalamadugu group of the system. The limestones are of the Narji series, and are fine-grained and compact. The proximity of the Narji quarries to the railway has led to their being widely employed for a variety of purposes under the name of 'Cuddapah slabs.'

Botany. The flora of the District is not peculiar or distinctive. In the upward *tāluks* it consists largely of drought-resisting plants such as cactus, *Euphorbias*, and *Asclepiads*; and the most noticeable trees are perhaps the date-palms which fringe all the hollows, and the tamarind which always does well on granite soil. In the low country the flora resembles that of the other black cotton soil areas, and the commonest tree is the *babūl* (*Acacia arabica*). The chief trees on the hills are referred to below in the account of the Forests.

Fauna. A few tigers, *sāmbar*, and spotted deer are found in the heavier forests, as also wild hog and an occasional *nīlgai*. The boulder-strewn hills of the upland *tāluks* afford admirable dwelling-places for bears and leopards. On the plains are antelope, *chinkāra* (Bennett's gazelle), wolves, and hyenas. Peafowl and jungle-fowl are not rare, and quail abound, but snipe are less common.

Climate and temperature. The climate differs greatly in the two natural divisions of which the District consists. The malaria of the basin in which CUDDAPAH town lies is most virulent, and has on more than one occasion led to proposals to move the head-quarters of the District to some other station. Fever also occurs along the foot of and among the various hills, and in the Kadiri *tāluk*. But most of the upland part of the District is exceptionally healthy and bracing. The temperature here resembles that of the Mysore plateau, being warm for three months but pleasant enough during the rest of the year. The Cuddapah

basin, on the other hand, is the hottest place in the whole Presidency, the mean temperature in May being 95°, and the heat beginning early in the year and lasting till late.

The rainfall, like the temperature, varies considerably in different parts. The average annual fall for the whole District is about 28 inches. Pullampet receives more than the other *tāluks* during the north-east monsoon, and its average is consequently by far the highest. Next in amount comes the fall in Sidhout and Cuddapah. The northern low-country *tāluks* receive 9 inches less than these last, and Jammalamadugu is the driest part of the District. The upland area is somewhat more fortunate, the fall there averaging 27 inches. Almost the whole District is included within the famine zone of the Presidency, and distress is frequent. Owing to causes already mentioned, floods often occur also. In 1803, 1818, and 1820 excessive rain greatly damaged the irrigation works; and in 1851, during a violent storm, 500 people were drowned in a village which was swept away. A serious accident occurred on the railway in 1870 at Nandalūr, owing to the washing away of the bridge over the Cheyyeru; and in 1902 two spans of the railway bridge near the Mangapatnam station were swept away by a sudden deluge of rain, the mail train was precipitated into the gap, and 71 lives were lost. Rainfall.

Cuddapah was never a political centre, and its history consists chiefly of raids made upon it by the rulers of neighbouring regions. From the eleventh to the thirteenth century it formed part of the territory of the CHOLA kings of Tanjore, then at the height of their power. During the fourteenth century, it seems to have passed under the Hindu kings of Vijayanagar; and, on the downfall of their rule in 1565 at the hands of the Muhammadan kings of the Deccan, it was overrun by one of the victors, the Kutb Shāhi Sultān of Golconda. The upland *tāluks* thereafter fell under the unchecked authority of small military chiefs, who had formerly held the forts on service tenure and who thenceforth remained in power through all the changes in sovereignty which supervened, until the British arrived and reduced them to order. Cuddapah town similarly continued in the hands of the successors of a Pathān Nawāb to whom it was granted about this time, and who played an important part in the various stormy episodes that occurred within the District. History and archaeology.

In 1678 the troops of Sivajī, the founder of the Marāthā power in India, devastated the District. Ten years later Aurangzeb, the Mughal emperor of Delhi, overran it. During

the Carnatic Wars of the eighteenth century, in 1750, the Nawāb of Cuddapah treacherously shot Nāsir Jang, the Sūbahdār of the Deccan, and joined his rival, Muzaffar Jang, the protégé of the French. In the following year, dissatisfied with the general results of the war, he headed a conspiracy in which Muzaffar Jang himself lost his life in the narrow pass of Lakkireddipalli, in the Rāyachoti *tāluk*. Salābat Jang, the new Sūbahdār of the Deccan, reduced the District in 1752 and placed it under Adoni, to the charge of which he nominated the infant son of his predecessor, Muzaffar Jang. In 1757 the District was overrun by the Marāthās. A decisive battle was fought near Cuddapah, in which the Nawāb was killed, and the town was left to the mercy of the freebooters. The Marāthās were, however, unable to reduce the rest of the District; and they entered into a treaty with the new Nawāb which secured to them half the country, including the strong fortress of GURRAMKONDA, which they garrisoned to guard their share. Five years later, Haidar Alī of Mysore seized Gurramkonda, and three years afterwards, in accordance with a secret treaty with Nizām Alī, then Sūbahdār of the Deccan, proceeded to take possession of the rest of the District. He was, however, opposed by Mādhava Rao, the Marāthā Peshwā, whose forces retook Gurramkonda. But Mādhava Rao died in 1772, and Haidar reoccupied the fort and garrisoned it. In 1780 he marched against the Nawāb of Cuddapah, utterly defeated him, took him prisoner to Seringapatam and put all his family to death except a sister, a beautiful girl of eighteen, whom he placed in his *zanāna*.

After the death of Haidar in 1782 the District was under the rule of Kamar-ud-dīn, one of the ablest generals of Tipū, Haidar's son and successor, and it enjoyed comparative quiet. On the outbreak of the war with Tipū in 1790, Gurramkonda was besieged by the Nizām. It held out until, by the treaty of 1792, it was ceded to the Nizām with the major portion of the District. In 1799, after the death of Tipū at the storm of Seringapatam, the remaining portion of the District also fell to the Nizām. In 1800, however, the whole of it was ceded by him to the British, in exchange for a subsidiary force to be stationed in his territories.

Major (afterwards Sir Thomas) Munro was appointed the first Collector of the territories so acquired, and his principal difficulty in reducing them to order was the turbulence and contumacy of the local military chieftains, known as *poligārs*. Within a year, however, he had brought them to submission,

resuming the estates of some and pensioning the others, and he then set himself to reorganize the revenue administration. Since then the peace of the District has been but twice disturbed. In 1832 the Pathāns of Cuddapah, mistaking an act committed by one of their own faith for an outrage on their principal place of worship, raised a riot and, in a fit of fanaticism, murdered Mr. Macdonald, the Sub-Collector. Fourteen years later, in 1846, Narasimha Reddi, a descendant of a dispossessed *poligār* on the Kurnool frontier of the District, dissatisfied with the small pension he received, attempted to raise a general rebellion and assembled some thousands of men. He was, however, captured by a British detachment and publicly hanged.

The most interesting antiquities in the District are perhaps the forts at GURRAMKONDA and GANDIKOTA. Prehistoric stone implements occur in large quantities along the valley of the Penner. There are dolmens in a few places. Some old Hindu coins and an *aureus* of Trajan have been discovered. The most noteworthy Hindu temples are those at Sompalle and Kadiri.

The number of towns and villages in the District is 1,247. The population in 1871 was 1,351,194; in 1881, 1,121,038; in 1891, 1,272,072; and in 1901, 1,291,267. The decline in 1881 was due to the great famine of 1876-8. Owing to the three bad seasons which occurred during the decade 1891-1901, the increase in that period was extremely small; and by the end of it the District had failed to recover the population lost twenty-five years before. Cuddapah is divided into the eleven *tāluks* of Badvel, Cuddapah, Jammalamadugu, Kadiri, Madanapalle, Proddatūr, Pulivendla, Pullampet, Rāyachoti, Sidhout, and Vāyalpād. Statistics of population, based on the Census of 1901, are given on the next page. The people.

The head-quarters of the *tāluks* (except that of Pullampet, which is at Rāzampeta) are at the places from which each is named. The chief towns are the municipality of Cuddapah, the administrative head-quarters of the District, and Madanapalle, the head-quarters of a divisional officer.

Cuddapah is larger than Wales, and ranks third in area among the Districts of the Presidency; but the density of the population, like that of all the Deccan Districts, is low, only two *tāluks* having as many as 200 persons to the square mile. Almost all the people speak Telugu, which is the prevailing language in every *tāluk*, the only other vernacular of importance being Hindustāni, which is spoken by about

8 per cent. of the population. Like the other Deccan Districts, Cuddapah presents a curious deficiency in the number of females, who are much outnumbered by the males. Of the total population 1,142,454 are Hindus and 129,537 Musalmāns. The latter bear a higher proportion (10 per cent.) to the total than is usual outside the Deccan.

Tāluk.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Jammalamadugu	616	1	129	103,707	168	+ 2·4	5,168
Proddatūr . .	478	1	86	102,570	215	+ 4·2	4,181
Pulivendla . .	701	1	101	103,396	147	− 2·3	4,646
Sidhout . .	606	...	79	68,087	112	+ 1·9	2,819
Badvel . .	755	2	111	89,361	118	− 4·1	4,306
Pullampet . .	979	1	127	143,521	147	− 3·7	6,213
Cuddapah . .	764	1	152	155,541	204	+ 0·4	8,920
Madanapalle .	837	1	99	136,977	164	+ 7·6	5,426
Kadiri . .	1,158	1	139	145,503	126	+ 7·8	4,395
Rāyachoti . .	998	1	89	113,912	114	+ 0·6	4,936
Vāyalpād . .	831	...	125	128,692	155	+ 1·3	4,661
District total	8,723	10	1,237	1,291,267	148	+ 1·5	55,671

Their castes and occupations.

Except the wandering tribe of the Yerukalas, who are more numerous here than in any other Madras District, the great majority of the Hindus are Telugus by race, though they include a sprinking of Tamils from the south. The two most numerous castes are the cultivating Kāpus or Reddis (300,000), and the trader and agriculturist Balijās (119,000); while among communities which, though not numerically remarkable, are found in greater strength in Cuddapah than elsewhere in the Presidency, may be mentioned the Besthas, who live by cultivation and fishing in tanks, the Patras, who are *shikāris* and agriculturists, and the Togata weavers. Brāhmans are scarce, numbering only 18 in every thousand of the Hindu population. A majority of the Musalmāns returned themselves as Shaikhs, but the Dūdekulas—a race sprung from intermarriage between Musalmāns and Hindu women—are exceptionally numerous. Pathāns and Saiyids are also more numerous than elsewhere.

By occupation the people are even more exclusively agricultural than usual, 71 per cent. subsisting by the land, and a further 3 per cent. by the tending and rearing of cattle, sheep, and goats. Weavers are also proportionately numerous.

Persons subsisting by the various professions are, on the other hand, comparatively few.

Of the 18,800 native Christians in the District, nearly 18,000 are Protestants. The Jesuit missionaries were the first to begin operations, but their work does not apparently date from farther back than the early part of the eighteenth century. Their chief station was Krishnapuram. The Christians there were constantly harassed by the persecutions of Tipū, which resulted in the eventual dispersion of the congregation. Later, another station was established at Satyapuram in the Proddatūr *tāluk*. The subversion of the Jesuits had the usual disastrous effect on these missions. From the beginning of the last century up to 1842 they were in charge of the Pondicherry Mission, and in 1843 they were transferred to the Vicar Apostolic of Madras. There are at present only 600 Roman Catholics in the District. Of the Protestant missions the chief are the London Mission, the American Arcot Mission, and the Society for the Propagation of the Gospel. The first of these originally began work in 1822 in Cuddapah town, and has gradually extended its operations into the Proddatūr, Jammalamadugu, Pulivendla, Sidhout, and Kadiri *tāluks*. The second has been established in the Madanapalle and Nāyalpād *tāluks* since 1886; and the last, which started forty years after the London Mission, is working in Badvel and Jammalamadugu. Christian missions.

Agricultural practice differs with the varying characteristics of the different parts of the District. The four upland *tāluks* undulate so continuously that it would be difficult to find in them a single square mile of perfectly level ground. The soil is thin and poor, but in the numerous villages lie narrow strips where the soil washed down from above is of better quality. These are often protected by chains of small tanks or artificial reservoirs. The three eastern *tāluks* contain belts of alluvium along the banks of the rivers which traverse them, and throughout these the underground supply of water is good and wells are numerous. Much of the four northern *tāluks* consists of a plain of black cotton soil; but in the Cuddapah *tāluk* wide stretches have been rendered useless by the salts and alkalies with which they are impregnated. In each of these different tracts the agricultural practice differs. The poorer soils are sown after light showers, the cotton soil when it has been thoroughly soaked, and the irrigated land only when the tanks have received their supplies. Generally speaking, the most important sowing season for both 'dry' and 'wet' land is from August to October: that is to say, by the middle General agricultural conditions.

of October nearly three-fourths of the 'dry' land and nearly half of the 'wet' land should have been sown.

Chief agricultural statistics and principal crops.

The District is composed entirely of *ryotwāri* and *inām* lands, and contains no *zamīndāris*. The area shown in accounts is 8,710 square miles, distributed as follows in 1903-4:—

Tāluk.	Area shown in accounts.	Forests.	Cultivable waste.	Cultivated.	Irrigated.
Jammalamadugu	612	58	16	349	22
Proddatūr . .	478	102	29	276	36
Pulivendla . .	701	107	51	335	31
Sidhout . .	606	335	10	83	32
Badvel . .	742	283	83	206	41
Pullampet . .	978	423	62	213	69
Cuddapah . .	764	194	76	354	82
Madanapalle .	838	151	51	332	43
Kadiri . .	1,160	218	112	488	35
Rāyachoti . .	999	306	74	286	35
Vāyalpād . .	832	183	84	270	44
District total	8,710	2,360	648	3,192	470

It will be seen that 27 per cent. of the District is covered with forests and a further 29 per cent. is not available for cultivation, while only 37 per cent. is cultivated. The staple food-grains are *cholam* (*Sorghum vulgare*), *cambu* (*Pennisetum typhoideum*), and *rāgi* (*Eleusine coracana*), the areas under which in 1903-4 were 456, 586, and 189 square miles respectively, or 16, 20, and 6 per cent. of the total area cropped. *Cholam* is the most prominent crop in the cotton soil tracts in Pulivendla, Jammalamadugu, Cuddapah, and Proddatūr; and *cambu* on the red soils in Rāyachoti, Kadiri, Vāyalpād, and Madanapalle. Next in importance come various pulses. Rice occupied 352 square miles. Cotton is grown mainly in Jammalamadugu, Proddatūr, and Pulivendla; indigo in Pulivendla and Cuddapah; and castor in Kadiri, Madanapalle, and Rāyachoti. Half of the area cultivated with horse-gram (the crop of the poor soils) is in the Kadiri *tāluk*. Tobacco is raised in small areas all over the District; sugar-cane chiefly in the upland *tāluks*; and melons chiefly in Sidhout and to some extent in Cuddapah.

Improvements in agricultural practice.

The total extent of holdings during the five years preceding the famine of 1876-8 averaged 1,305,000 acres. By 1903-4 this had increased to 1,340,000 acres, or by only 2·7 per cent. The famine of 1876 did immense harm to the country, which has hardly yet recovered. Little has been effected towards the improvement of the quality of the crops grown. The ryots

have, however, availed themselves largely of the Land Improvement Loans Act. Between 1888 and 1904 more than $7\frac{1}{2}$ lakhs was advanced under this enactment, the greater portion of which has been laid out in digging or repairing wells.

Cattle and sheep. Cattle and sheep are bred in a casual fashion in many parts of the District. The best cattle are, however, imported from Nellore and Mysore by travelling drovers, who sell them to the ryots on the instalment system. Sheep are of two breeds, the *kurumba* and the *semmeri*. The former are black-faced sheep carrying white wool, which is woven into coarse blankets by the Kuruba caste. The latter are brown and covered with hair instead of wool, and are valued only for their flesh and their manure.

Irrigation. Of the total area of *ryotwāri* and 'minor *inām*' lands cultivated, 470 square miles, or 15 per cent., were irrigated in 1903-4. Of this amount only 15 per cent. was supplied from canals, while 40 per cent. was watered from wells and 39 per cent. from tanks.

There are only two works in the District, the KURNOOL-CUDDAPAH CANAL and the Sagileru project, which are sufficiently important to have separate capital and revenue accounts kept for them. The area irrigated by the former varies greatly with the season, the ryots taking little water except in bad years. In 1903-4 it supplied 20,000 acres. The Sagileru project, which irrigated 7,000 acres in the same year, consists of a dam across the river of that name and a channel that feeds ten tanks. The Chapād and the Vemula tank projects are two additional schemes which are under construction. The great Tungabhadra project, now under investigation, would increase the supply in the Penner river and benefit the land commanded by it.

Of the 4,361 tanks in the District the chief are those in Badvel, Porumāmilla, Kandukūr, and Peddatippasamudram (Madanapalle *tāluk*). In the upland *tāluks* there are a great number of small tanks, the area supplied by each of which is often less than an acre.

Wells are in many parts the chief support of the ryot in times of deficient rainfall. There are 47,000 of them in working order. The average area irrigated by each well ranges, according to the nature of the soil, from about $1\frac{1}{2}$ acres in Madanapalle, Vāyalpād, and Rāyachoti to 5 acres in Jammalamadugu and Pullampet. Leathern buckets drawn up with a rope and pulley by cattle working down an inclined plane are universally used for lifting water. The Cuddapah ryot does

not back the animals up the ramp between each bucketful as in some other Districts. He detaches them and lets them walk round to the top, where they are again fastened to the rope to raise the next bucket.

Forests.

The forests of the District cover 2,360 square miles, or 27 per cent. of the area for which particulars are available. They are confined almost entirely to the hills, hardly any being found on the low ground; the largest continuous areas are on the Pālkonda Hills in the Pullampet, Rāyachoti, and Sidhout *tāluks*, and on the Nallamalais. The extent and value of the forests has recently (1906) led to their being subdivided into the three charges of South, North, and West Cuddapah, each under a District Forest officer with head-quarters at Cuddapah town.

At present the growth in them consists mainly of coppice shoots. The annual rainfall is insufficient for the production of large timber, the forests are heavily grazed by licensed cattle, and fires are of frequent occurrence in the hot season, when the whole country is as dry as tinder. The most important trees are *Anogeissus latifolia*, the uncommon red-sanders (*Pterocarpus santalinus*), *yepi* (*Hardwickia binata*), a graceful, birch-like tree which produces perhaps the hardest and heaviest timber in India, *Terminalia tomentosa*, *Shorea Talura*, and some teak and satin-wood (*Chloroxylon Swietenia*).

Honey and wax and other minor products are collected by the Yānādis, a wild jungle race, who will climb in search of them into apparently inaccessible places.

Minerals.

Metallic minerals are scarce in Cuddapah. Some iron ores exist in the Nallamalais and elsewhere, but they are not now worked. The argentiferous galena of Jangamrāzupalle and Vonipenta has attracted attention. Extensive old workings for it occur in villages to the north of the road from Cuddapah to Badvel. Some shingle beds in the valley of the Penner east of Chennūr and 4 or 5 miles north of Cuddapah town were worked for diamonds by washing, between 1860 and 1870, but the results were not encouraging.

Good building-stone is common all over the District. Granite, limestone, slate, and sandstone are quarried in considerable quantities in different places, and laterite is found in appreciable amounts in the Cuddapah *tāluk*. The 'Cuddapah slabs' have already been referred to.

Arts and manufactures.

There are no industries of importance. Cotton-weaving is of the ordinary kind, only coarse cloths being made. In the Jammalamadugu *tāluk* turbans of a coarse kind and carpets are woven, which are sent to the Central Provinces for sale.

Pullampet has a reputation for its lace cloths, which are sent to Madras and other places. At Proddatūr two cotton-presses work during the cotton harvest. There are nearly 2,000 indigo-vats, two sugar mills, and four small tanneries.

Commerce. Cuddapah has no particular trade. It exports what little surplus agricultural products it raises, and imports in return the necessaries of life which are not produced locally. The chief exports are pulses, horse-gram, castor seed, *cholam*, cummin seed, indigo, turmeric, jaggery (coarse sugar), tamarind, *pishānam* rice, and cotton; while the chief imports are salt, European piece-goods and metal ware, gingelly oil, coco-nuts, and kerosene oil. Cummin seed is sent to all the southern parts of the Presidency, and cotton chiefly to Madras. Proddatūr, Jammalamadugu, Vāyalpād, and Pullampet are the centres of general trade, and the principal trading caste is the Komatis. The Mārwāris, who are foreigners, do some of the trade of the upland *tāluks*. Most of the internal commerce is carried on at weekly markets. Some of these are under the control of the local boards, and in 1903-4 more than Rs. 7,500 was collected in market fees. The most important are those at Pulivendla, Pileru, Madanapalle, Burakoilkota, and Proddatūr.

Railways and roads. The north-west line of the Madras Railway (standard gauge) enters the District at Peddapādu in its south-east corner, and runs diagonally across it to the north-west corner, passing by Cuddapah town. It was opened in 1864-6. The South Indian Railway (metre gauge) enters the District near Pileru on the southern frontier, and runs in a north-westerly direction to join the Southern Mahratta Railway at Dharmavaram in Anantapur District. It was opened in 1892. A branch from this to Rāyachoti, which has been surveyed, would protect an area very liable to famine. The total length of metalled roads is 642 miles, and of unmetalled roads 662 miles, maintained from Local funds. There are avenues of trees along 953 miles. Roads are fairly numerous in the eastern and northern sections of the District, where, however, the loose nature of the soil makes them expensive to maintain; and in the southern portion, on the harder red soils, they are plentiful. The section of the Kurnool-Cuddapah Canal in the Proddatūr and Cuddapah *tāluks* is open for navigation for a part of the year.

Famine. The greater part of the District lies within the famine zone of the Presidency, the only *tāluks* not distinctly included in it being those which form the eastern section. It has suffered repeatedly from bad seasons. Between 1800 and 1802, considerable distress prevailed, and relief works were opened.

Other scarcities occurred in 1805–7, 1824, and 1833. In 1866 very high prices obtained. The worst season ever known was the great famine of 1876–8. At the height of this, in September, 1877, there were 139,000 persons on relief works, besides 157,000 in receipt of gratuitous relief. Together, these made up no less than 22 per cent. of the total population. The Census of 1881 showed a decrease of 230,156, or 17 per cent., as compared with the Census of 1871. This loss was due to the famine. Including advances to agriculturists and weavers and remissions of land revenue, the distress in this District alone cost the state at least 70 lakhs. In 1891–2 there was again severe scarcity. In May, 1892, more than 12,000 persons were on relief. Including remissions of assessment and advances to agriculturists, the cost was 12¼ lakhs. Scarcity once more appeared in 1896–7, owing to deficient rainfall. At the height of the famine, in July, 1897, 123,100 persons were being relieved, 106,400 on works, and 16,700 gratuitously. The cost to the state, including the sums lent to agriculturists and remissions of land and other revenue, was about 21½ lakhs. The last scarcity, in 1900–1, was less severe. The largest number on relief works was 4,100 (in August, 1901), and the number fed at kitchens was 1,400 in the following month. The total expenditure was 5½ lakhs, including about Rs. 20,800 received from the Indian Famine Charitable Relief Fund. Weavers were helped by granting them advances to be repaid in woven cloth. These advances amounted to Rs. 93,500, and Rs. 85,000 was recovered by the sale of the cloth.

District subdivisions and staff. For administrative purposes the District is distributed into four subdivisions, one of which is usually in charge of a member of the Indian Civil Service, while the others are under Deputy-Collectors recruited in India. These subdivisions are: Madanapalle, comprising the four upland *tāluks* of Rāyachoti, Kadiri, Vāyalpād, and Madanapalle; Jammalamadugu, comprising Proddatūr, Jammalamadugu, and Pulivendla in the north-west corner; Sidhout, comprising Badvel, Sidhout, and Pullampet on the eastern frontier; and Cuddapah, which consists of the single *tāluk* of that name. There is a *tahsīldār* at the head-quarters of each *tāluk*, and (except at Vāyalpād, Sidhout, and Badvel) a stationary sub-magistrate also. Deputy-*tahsīldārs* are stationed at Pileru, Chitvel, Kamalāpuram, and Cuddapah. The superior staff of the District consists of the usual officers, except that, as already mentioned, there are three Forest officers. The head-quarters of the Executive Engineer are at Madanapalle.

Civil justice is administered by a District Judge and four regular District Munsifs. The Court of Sessions at Cuddapah hears the serious criminal cases. Murders are more than usually common, being mostly due to spite or jealousy. Dacoities increase, as elsewhere, in times of scarcity. In many villages there are rival parties, one faction being led by the village headman and the other by some other influential person. This state of things frequently gives rise to rioting, murder, and other offences. Crime has become less frequent since the provisions of the Criminal Procedure Code, which enable security to be demanded from suspicious characters, have been rigorously enforced. Civil justice and crime.

Little is known of the revenue history of the District previous to its occupation by the British. Munro's first settlement is the earliest matter on which there is accurate information. Owing to the fact that he took charge towards the end of 1800, he had time that year to conduct only a hasty settlement with the village as the unit. This was based on the *kāmil* assessment made by the Muhammadan government, the assessment of 1788–9 under Tipū Sultān, and that of 1799–1800 under the Nizām. The revenue received was only about 12 lakhs, compared with 23 lakhs raised by the Musalmāns. The next year (1801–2) Munro introduced a *ryotwāri* settlement. He also began a new survey and settlement, which was completed in five years. At the end of that time (1807) the revenue amounted to 17 lakhs, but in the following year it rose to 22 lakhs, and in the succeeding year to over 23 lakhs. Munro took leave in 1807. The next year the villages were rented out as small farms for a term of three years, the step being preparatory to a permanent lease. This plan was not at all successful, and a longer lease, for ten years, was inaugurated in 1811. The nominal revenue of the District during this lease was higher than it had ever been, but few of the renters were able to pay their dues. The system was a complete failure, and on the expiration of the lease in 1821 the *ryotwāri* system introduced by Munro was reverted to. Reductions in Munro's rates of assessment, amounting to 25 per cent. in the case of 'dry' land, and 33 per cent. on 'wet' and garden land, were sanctioned at the same time. The immediate result of this was a fall in the revenue to about 15 lakhs. But thenceforward the receipts began steadily to rise, and the revenue in 1830 was nearly 20 lakhs. About 1866, a new survey of the District was begun, and a new settlement was put in hand in 1874 and completed in 1883. The survey found an excess in Land revenue administration.

the cultivated area of 8 per cent. over the area shown in the revenue accounts, and the settlement enhanced the total revenue by Rs. 1,08,000, or 7 per cent. The average assessment on 'dry' land is now R. 0-7-3 per acre (maximum, Rs. 5; minimum, 4 annas), and on 'wet' land Rs. 4-9-6 (maximum, Rs. 10; minimum, Rs. 2). The survey and settlement are now about to be revised. The revenue from land and the total revenue in recent years are given below, in thousands of rupees:—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . .	21,44	21,36	20,92	25,20
Total revenue . .	26,16	29,47	28,39	33,18

Local boards.

Outside the municipality of Cuddapah, local affairs are managed by the District board and the four *tāluk* boards of Sidhout, Madanapalle, Cuddapah, and Proddatūr, the areas of which correspond with the four administrative subdivisions above mentioned, the Proddatūr *tāluk* board controlling matters in the Jammalamadugu subdivision. The total expenditure of these bodies in 1903-4 was about 3 lakhs, of which nearly a lakh was laid out on roads and buildings. The chief source of their income is, as usual, the land cess. In addition, the affairs of seventeen of the smaller towns are managed by Union *panchāyats* established under Madras Act V of 1884.

Police and jails.

The Superintendent of police at Cuddapah has general control over the force within the District. There are 90 police stations; and in 1904 the force numbered 1,040 constables (including 111 head constables) and 515 *ghāt talaiyāris*, working under 20 inspectors, besides 1,094 village *talaiyāris*, or rural police. The *ghāt talaiyāris* are special watchers stationed at the more desolate parts of the main roads to protect travellers from dacoits.

The District jail at Cuddapah was closed in 1895, owing to the unhealthiness of the town. Convicts sentenced to periods of imprisonment exceeding one month are now sent to Vellore, Bellary, or Nellore. A portion of the old jail is, however, used as a subsidiary jail for persons under trial, prisoners sentenced to thirty days and under, and convicts *en route* to Vellcre, &c. There are also 13 other sub-jails, which can collectively accommodate 265 males and 110 females, at the stations of the ten *tahsīldārs* and the three deputy-*tahsīldārs*.

Educationally, Cuddapah is backward. It ranks eighteenth among the twenty-two Districts of the Presidency in the literacy of its population, of whom only 4·3 per cent. (8·1 males and 0·4 females) are able to read and write. The Cuddapah and Madanapalle *tāluks* are the least illiterate. The total number of pupils under instruction in 1880–1 was 6,701; in 1890–1, 14,329; in 1900–1, 19,856; and in 1903–4, 21,590. The improvement during the last twenty years has thus been great. On March 31, 1904, there were in the District 985 educational institutions, of which 906 were classed as public and 79 as private. Of the former, 6 were managed by the Educational department, 92 by the local boards, and 6 by the Cuddapah municipality; while 347 were aided from public funds, and 455 were unaided but conformed to the rules of the department. They comprised 891 primary, 14 secondary, and one training school. The girls in them numbered 2,499. The District possesses no Arts college. The very great majority of the pupils under instruction are in primary classes. Of the male population of school-going age 17·6 per cent. were in the primary stage in 1903–4, and of the female population of the same age 2·6 per cent. Among Musalmāns (who, however, form a comparatively small proportion of the population) the corresponding percentages were 35·0 and 5·1. About 650 Panchama pupils were under instruction at 188 schools especially maintained for depressed castes. The two high schools are the municipal high school at Cuddapah and the native school at Madanapalle. The total expenditure on education in 1903–4 was Rs. 1,25,000, of which Rs. 49,000 was derived from fees. Of the total, 82 per cent. was devoted to primary schools. Education.

The District possesses 3 hospitals and 9 dispensaries, which contain accommodation for 98 in-patients. In 1903 the number of cases treated was 105,000, of which 1,100 were in-patients, and 2,850 operations were performed. The expenditure was Rs. 26,200, the greater part of which was met from Local and municipal funds. The hospitals at Madanapalle and Cuddapah possess endowments from public subscription. The mission hospital at Jammalamadugu is an excellent institution. Hospitals and dispensaries.

In regard to vaccination the District has generally been backward. In 1903–4 the number of persons successfully vaccinated was only 24·6 per 1,000 of the population, or far less than the mean for the Presidency (30). Vaccination is compulsory in the municipality of Cuddapah and in twelve of the seventeen Unions. Vaccination.

[For further information regarding the District see the *Cuddapah District Manual*, by J. D. B. Gribble, 1875.]

Jammalamadugu Subdivision.—Subdivision of Cuddapah District, Madras, consisting of the JAMMALAMADUGU, PRODDATŪR, and PULIVENDLA *tāluks*.

Jammalamadugu Tāluk (*Jambulu-madugu*, 'the pool of rushes').—North-western *tāluk* of Cuddapah District, Madras, lying between 14° 37′ and 15° 5′ N. and 78° 4′ and 78° 30′ E., with an area of 616 square miles. The population in 1901 was 103,707, compared with 101,296 in 1891. The number of persons to the square mile is 168, the District average being 148. The *tāluk* contains one town, JAMMALAMADUGU (population, 13,852), the head-quarters, and 129 villages. The demand for land revenue and cesses amounted in 1903-4 to Rs. 2,72,000. The annual rainfall averages 22 inches, compared with 28 in the District as a whole, and is less than in any other *tāluk*.

Two small hill ranges run from east to west through the southern portion of Jammalamadugu, both of which are parts of the Erramalas (Errakondas) or 'red hills.' One of them divides the *tāluk* from Pulivendla; and the other, which lies parallel to it, reaches its highest point at the fine gorge where the Penner bends sharply to the north and flows by Gandikota to the town of Jammalamadugu. The Penner and Chitrāvati rivers join near Gandlūr on the west of the *tāluk*, and their united channel drains the greater portion of the country. In the precipitous gorge of Gandikota, the river is reduced to an average width of 200 yards; but in the level plain near the chief town it is at least three times as broad. Its waters are utilized to some slight extent for irrigation channels, but the manner in which the land rises from the river banks prevents any great use being made of them. Except the Penner basin, the whole of the *tāluk* may be included in the black cotton soil tract. The quality of the land varies considerably, being excellent in the north and west but only mediocre in the south. The wide plains of black soil are almost entirely divided between the two crops of *cholam* and cotton. Indigo, gram, and oilseeds are also raised; but water is so scarce that rice and *rāgi* may be said to be confined to the immediate neighbourhood of the Penner and its channels. The *tāluk* has been liable from time to time to inundations. In 1851 the village of Chautapalle, at the confluence of the Penner and the Chitrāvati, was totally destroyed by flood. Enormous freshes came down both rivers simultaneously and carried away the

whole place, drowning about 500 of its inhabitants. On the morning of September 12, 1902, a sudden deluge of rain swept away two spans of the railway bridge near the Mangapatnam railway station, with the result that the mail train was precipitated into the gap and seventy-one lives were lost. The KURNOOL-CUDDAPAH CANAL touches the north-east corner of the *tāluk*.

Proddatūr Tāluk.—Northern *tāluk* of Cuddapah District, Madras, lying between 14° 36′ and 15° 2′ N. and 78° 26′ and 78° 53′ E., with an area of 478 square miles. The Nallamalai Hills form a natural frontier on the east, while in the south the tract is bounded by the Cuddapah *tāluk* and the Penner. The population in 1901 was 102,570, compared with 98,418 in 1891. It contains one town, PRODDATŪR (population, 14,370), the head-quarters, and 86 villages. The demand for land revenue and cesses amounted in 1903-4 to Rs. 2,58,000. Being fertile black cotton soil, Proddatūr is the most densely peopled *tāluk* in the District, its population, who are mainly Telugus, numbering 215 to the square mile, compared with an average of 148 for the District as a whole. 'Cuddapah slabs' are much used for building. About one-fourth consists of 'reserved' forest, most of which lies on the Nallamalais. The KURNOOL-CUDDAPAH CANAL traverses it. Cotton is the principal product. There are no manufactures except indigo.

Pulivendla.—North-western *tāluk* of Cuddapah District, Madras, lying between 14° 10′ and 14° 44′ N. and 77° 57′ and 78° 38′ E., with an area of 701 square miles. It is bounded on the south by the Pālkonda Hills and north by the Erramalas, while to the east runs the Pāpaghni river. The population in 1901 was 103,396, compared with 105,842 in 1891. It contains one town, VEMPALLE (population, 10,793), and 101 villages, including Pulivendla (1,894), the head-quarters. The demand for land revenue and cesses amounted in 1903-4 to Rs. 2,38,000. The greater part is unirrigated, there being no river of any size in it. An estimate for Rs. 19,000 has recently been sanctioned for the construction of a tank, commanding 750 acres in Vemula. Irrigation from wells is, however, general; and in favoured situations, such as the eastern portion, where the subsoil water lies at no great depth, the ground so tilled becomes most productive. The chief, and indeed almost the sole, industry is agriculture. Cotton and *cholam* divide the greater part of the land between them.

Sidhout Subdivision.—Subdivision of Cuddapah District, Madras, consisting of the SIDHOUT, BADVEL, and PULLAMPET *tāluks*.

Sidhout Tāluk ('the hermit's banyan-tree').—Eastern *tāluk* of Cuddapah District, Madras, lying between 14° 16′ and 14° 41′ N. and 78° 52′ and 79° 22′ E., with an area of 606 square miles. It is situated between the Pālkonda Hills and the Velikonda range. The population in 1901 was 68,087, compared with 66,810 in 1891; and the density is 112 persons per square mile, compared with the District average of 148. It contains 79 villages, including Sidhout, the head-quarters. The demand for land revenue and cesses amounted in 1903-4 to Rs. 1,10,000. The annual rainfall is 33 inches, against the District average of 28 inches. The best land is in the valley of the Penner, where water is easily obtained by sinking wells. Little of the *tāluk* is cultivated except the valleys, owing to the numerous rugged hills by which it is cut up. Though four rivers cross it, few irrigation channels are drawn from them, as they run in deep beds; and almost the only benefit derived from the wealth of water which runs away to the sea is the increase in the moisture of the subsoil in the valleys. The principal products are indigo and cotton. More than half of the *tāluk* consists of 'reserved' forests.

Sidhout, the head-quarters, is a place of some importance and of considerable sanctity. Owing to a fancied resemblance in its position on the Penner to that of Benares on the Ganges, and to the relative situation of some neighbouring villages and rivers, it is sometimes called Dakshina Kāsi or the 'Southern Benares.' It is known for its melons, the cultivation of which is carried on from January to March in the dry sandy bed of the Penner.

Badvel Tāluk.—North-eastern *tāluk* of Cuddapah District, Madras, lying between 14° 37′ and 15° 14′ N. and 78° 45′ and 79° 11′ E., with an area of 755 square miles. The population in 1901 was 88,361, compared with 93,152 in 1891, the decrease being greater than in any other *tāluk* in the District. The density is 118 persons to the square mile, compared with the District average of 148. It contains two towns, BADVEL (population, 10,883), the head-quarters, and PORUMĀMILLA (5,522); and 111 villages. The demand for land revenue and cesses amounted in 1903-4 to Rs. 1,70,000. The annual rainfall is exactly equal to the District average of 28 inches. More than one-third consists of 'reserved' forests, the best being on the spurs of the NALLAMALAIS which run down

into the north-western portion of it. The chief product is indigo. The *tāluk* suffers from deficient water-supply; it possesses two of the finest tanks in the District—at Badvel and Porumāmilla—but has only one river, the Sagileru. The Sagileru irrigation project, which was completed in 1898–9, consists of a dam across the river and a channel 10 miles long supplying a chain of tanks. It has proved successful, as all the land suitable for cultivation and commanded by it has been readily taken up.

Pullampet.—South-eastern *tāluk* of Cuddapah District, Madras, lying between 13° 44′ and 14° 25′ N., and 78° 59′ and 79° 29′ E., with an area of 979 square miles. The Velikondas, which are a section of the Eastern Ghāts, and the Pālkonda (or Seshāchalam) Hills bound it on three sides. The population in 1901 was 143,521, compared with 149,109 in 1891. It contains one town, RĀZAMPETA (population, 15,287), the head-quarters, and 127 villages. The demand for land revenue and cesses amounted in 1903–4 to Rs. 2,62,000. Unlike the rest of Cuddapah, Pullampet benefits considerably from the north-east monsoon, and its annual rainfall (35 inches) is the heaviest in the District. More than one-third of the *tāluk* consists of 'reserved' forests, most of which lie on the Pālkonda Hills. Cultivation is principally carried on in two valleys. One of these, the Cheyyeru valley, which formerly constituted the petty chiefship of Chitvel, is most fertile and productive.

Cuddapah Tāluk.—Subdivision and *tāluk* in the District of the same name, Madras, lying between 14° 17′ and 14° 43′ N. and 78° 21′ and 78° 55′ E., with an area of 764 square miles. It is bounded on the south and east by the Pālkonda Hills, and on the north partly by the Lankamalla range. The population in 1901 was 155,541, compared with 154,899 in 1891; and the density was 204 persons per square mile, the District average being 148. The annual rainfall is 32 inches, compared with the District average of 28 inches. It contains one town, CUDDAPAH (population, 16,432), the head-quarters of the *tāluk* and District, and 152 villages. The demand for land revenue and cesses amounted in 1903–4 to Rs. 3,13,000. The Cuddapah valley, in which the town lies, is a basin completely shut in by hills on three sides, and is excessively hot and notoriously feverish. The Penner traverses the *tāluk* from west to east, and receives within its limits three subsidiary streams: the Kunderu from the north, which joins it near Kamalāpuram; the Pāpaghni from the south, which runs into it below the same town; and the Buggeru, which after having received

several affluents, flows into it close by the town of Cuddapah. The *tāluk* lies beyond the limit of black cotton soil which covers the western side of the District, and its soil is for the most part alluvial, overlying beds of argillaceous slates. This is by no means good generally, and is often rendered quite worthless by the presence of saltpetre, common salt, and soda, all of which occur as efflorescences. Agricultural practice is decidedly better than in other parts of the District. The methods are not much more elaborate than elsewhere, nor the implements much more perfect; but manuring and the rotation of crops are better understood, and the situation in the vicinity of centres of population and of commercial activity strengthens the hands of the ryot by increasing the demand for his produce and by rendering money available at moderate rates. The *tāluk* is fortunate in its water-supply, but the floods in the Penner might be more utilized.

Madanapalle Subdivision.—Subdivision of Cuddapah District, Madras, consisting of the MADANAPALLE, KADIRI, RĀYACHOTI, and VĀYALPĀD *tāluks*.

Madanapalle Tāluk.—South-western *tāluk* of Cuddapah District, Madras, lying between 13° 27′ and 14° 1′ N. and 78° 5′ and 78° 45′ E., with an area of 837 square miles. The population in 1901 was 136,977, compared with 127,352 in 1891; and the density was 164 persons per square mile, the District average being 148. It contains one town, MADANAPALLE (population, 14,084), the head-quarters of the *tāluk* and of the subdivision of that name, and 99 villages. The demand for land revenue and cesses amounted in 1903–4 to Rs. 2,48,000. The annual rainfall is 28 inches, the same as the District average. There are two rivers in the *tāluk*, the Pāpaghni and the Bāhudānadī. The former has some supply for the greater part of the year, but the latter is full only during the monsoons. The principal crops are rice, *rāgi*, *cholam*, wheat, and sugar-cane. The *tāluk* is very hilly, except in its north-western portion, where it runs up to meet the Mysore plateau. The hills are composed of great bare bosses and boulders of granite which have weathered into every shade of brown, purple, and gold, and in the cultivation season the contrast between their colouring and the green crops below is extremely beautiful. The soil is for the most part good in the valleys, into which the rains have washed down the earth from the hills, but poor elsewhere. The *tāluk* is rich in natural springs, which appear after every shower of rain. Its climate is the pleasantest in the District, as the country stands at a comparatively high elevation,

but it is not free from fever. The irrigation is chiefly from tanks, the principal of which are at Peddatippasamudram, Vyāsasamudram, Rangasamudram, Badikayalipalle, and Chinnatippasamudram.

Kadiri Tāluk.—Western *tāluk* of Cuddapah District, Madras, lying between 13° 47′ and 14° 31′ N. and 77° 51′ and 78° 28′ E., with an area of 1,158 square miles. It is very irregular in shape, its extreme length being 45 miles, and its maximum breadth 35 miles. The population in 1901 was 145,503, compared with 134,915 in 1891, the increase during the decade being greater than in any other *tāluk* of the District. The density was 126 persons per square mile, compared with the District average of 148. It contains one town, KADIRI (population, 10,493), the head-quarters, and 139 villages. The demand for land revenue and cesses amounted in 1903–4 to Rs. 2,07,000. The *tāluk* is very stony and barren, and is cut up by detached rocky hills which are usually destitute of vegetation. During the hot season the ryots entirely depend for water on wells, the rivers and almost all the tanks being quite dry. These wells are constructed at great cost and with considerable labour, the ground below the thin surface soil being often solid rock. The Maduleru, one of the feeders of the Chitrāvati, rises in the *tāluk*, and the Pāpaghni passes through its southern and south-eastern portions; but they are of little use for irrigation. The soil is very poor, being chiefly coarse red earth mixed with disintegrated granite, which is often impregnated with soda and other salts. Black cotton soil is, however, met with in patches here and there. The chief products are horse-gram, *cholam*, sugar-cane, and cotton. A good deal of jaggery (coarse sugar) is produced. Hematite occurs in small quantities and used to be smelted by the primitive native processes.

Rāyachoti Tāluk.—Central *tāluk* of Cuddapah District, Madras, lying between 13° 50′ and 14° 20′ N. and 78° 25′ and 79° 10′ E., with an area of 998 square miles. It is flanked on the east by the Pālkonda Hills, which separate this tract from the lower country. The population in 1901 was 113,912, compared with 113,236 in 1891; and the density was 114 persons per square mile, compared with the District average of 148. It contains one town, RĀYACHOTI (population, 7,123), the head-quarters, and 89 villages. The demand for land revenue and cesses amounted in 1903–4 to Rs. 1,63,000. Like the other upland *tāluks*, Rāyachoti contains a large number of tanks, but few are of any size. In the floods of November, 1903, over one hundred of them were breached. The principal products

are rice and *cambu*, the latter being the staple food-grain. The soils vary considerably, but the red varieties predominate. There is no black cotton soil. The most fertile portion is to the south-east in the neighbourhood of Tsundupalle, where there are a large number of tanks and some channels from the Punchu and Bāhudā rivers. There are four rivers in the *tāluk* —the Pāpaghni, which flows through a small part of the western portion, the Māndavi, the Bāhudā, and the Chitleru. All of them are affluents of the Cheyyeru, and none is perennial or of any size. The Pāpaghni runs in a rocky channel with a very rapid stream. The Māndavi, on the banks of which the town of Rāyachoti is situated, usually consists of a narrow stream of water trickling through a wide sandy bed.

Vāyalpād.—South-eastern *tāluk* of Cuddapah District, Madras, lying between 13° 35′ and 13° 55′ N. and 78° 34′ and 79° 18′ E., with an area of 831 square miles. It is shut in on the east by the Pālkonda Hills, which divide it from the lower part of the District, and along the top of which runs a striking scarp of deep-red rock, visible for miles from the west. The population in 1901 was 128,692, compared with 127,043 in 1891. The *tāluk* contains 125 villages, of which Vāyalpād (population, 4,442) is the head-quarters. The demand for land revenue and cesses amounted in 1903–4 to Rs. 2,14,000. About one-fourth of the *tāluk* consists of 'reserved' forests, most of which lie on the Pālkonda Hills. There are a large number of tanks. The sugar-cane grown here is known throughout all Southern India.

Badvel Town ('the town of cloths').—Head-quarters of the *tāluk* of the same name in Cuddapah District, Madras, situated in 14° 44′ N. and 79° 4′ E., in the valley of the Sagileru, 32 miles from Cuddapah town. Population (1901), 10,833. It lies near a large tank which irrigates a wide extent of land. In the hamlet of Lakshmipālem is an ancient temple to Prasanna Venkateswaraswāmi, and in the town itself are two other old shrines.

Cuddapah Town.—Head-quarters of the *tāluk* and District of the same name in Madras, situated in 14° 29′ N. and 78° 50′ E., 507 feet above the level of the sea, 161 miles from Madras city by rail. Population (1901), 16,432, of whom half are Muhammadans who have, as a class, a reputation for illiteracy and religious intolerance. The name is sometimes derived from the Sanskrit *kripa*, 'mercy'; but others connect it with *kadapa*, meaning in Telugu a 'gate,' since the place is in some sense the gate from the north to the sacred town of Tirupati.

During the Musalmān occupation it went by the name of Neknāmābād, after its supposed founder, Neknām Khān. It lies a few miles from the south bank of the Penner, and being enclosed on three sides by rocky hills is one of the hottest places in the Presidency, the average maximum temperature from March to June being over 100°. It also has a very bad name for malaria, and proposals have more than once been made to transfer the District head-quarters elsewhere. The Executive Engineer has been moved to Madanapalle, and the London Mission and the Madras Railway have also changed their head-quarters in the District to more healthy stations. The native town is surrounded by irrigated land, and the houses in it are squalidly built (generally of mud), badly constructed, and without free ventilation. The introduction of a supply of drinking-water from the Buggeru has probably to some extent lessened its unhealthiness. It has been proposed to prohibit 'wet' cultivation in the immediate neighbourhood. A drainage scheme estimated to cost 5 lakhs is under consideration, and the preliminary cutting of a channel through the town to remove the surplus subsoil water which stagnates below has been sanctioned. The present town seems to be comparatively modern. It is probable that one of the lieutenants of the Golconda army erected the fort about 1570; but it is not till the beginning of the eighteenth century, when the Pathān Nawāb of Cuddapah had absorbed the whole of the neighbouring tracts except Gooty, and had extended his conquests to the Bāramahāl, that Cuddapah appears as the capital of a separate principality. The ultimate fate of its Nawābs is referred to in the account of the history of the District. The country was ceded to the Company by the Nizām in 1800, and the town was made the head-quarters of the District in 1817, and was a military cantonment until 1868. It was constituted a municipality in 1866. The municipal income and expenditure during the ten years ending 1902–3 averaged Rs. 46,000. In 1903–4 the income was Rs. 56,000, mostly derived from the taxes on houses and lands and tolls; and the expenditure was Rs. 49,000. The chief buildings are the Collector's office, erected in stone in 1889 at a cost of 2½ lakhs; Christ Church, designed by Mr. Chisholm, the late Government architect, and one of the prettiest of the Madras country churches; and the Collector's residence, a more than usually commodious building.

Gandikota ('Gorge-fort').—Ancient fortress in the Jammalamadugu *tāluk* of Cuddapah District, Madras, perched on

a hill overlooking the gorge of the Penner river, 1,670 feet above the sea, in 14° 47′ N. and 78° 16′ E.

This narrow and deep gorge is the finest river pass in the District, and indeed in Southern India, with the exception of the wild bed of the Kistna where that river cuts its way through the Nallamalais between Kurnool District and the Nizām's Dominions. For a mile or more the Penner rushes through a gap barely 200 yards wide, on either side of which rise, sheer from its foaming waters, dark cliffs 200 or 300 feet in height. Those on the right bank are crowned by the Gandikota fort.

According to an ancient grant in the fort, a king called Kapa, of Bommanapalle, a village close by, founded the village of Gandikota, and built its fortress. Harihara, the first of the Vijayanagar kings, is said to have constructed a temple in it. According to Firishta, however, the fort was not built until 1589. It was captured by the Golconda Sultān and held by Mīr Jumla; later, it was the capital of one of the five *Sarkārs* of the Carnatic Bālāghāt, until it was absorbed by the Pathān Nawāb of Cuddapah. It was here that Fateh Naik, the father of the great Haidar Alī, first distinguished himself. Haidar improved and garrisoned the fort, but it was captured by Captain Little in the war with Tipū in 1791. Properly defended, it should, in the conditions of warfare then existing, have been impregnable. It was always one of the most important strongholds in the Cuddapah country, being the key to the valley of the Penner, and its name occurs frequently in the accounts of the ancient struggles.

Gurramkonda (*Gurram*, 'a horse,' and *konda*, 'a hill').—Ancient fortress in the Vāyalpād *tāluk* of Cuddapah District, Madras, situated in 13° 47′ N. and 78° 36′ E. Population (1901), 1,718. The fort was always one of the most important strongholds in Cuddapah, and is supposed to have been first built by the Golconda Sultāns. The work in it is entirely Muhammadan. It stands on an extraordinary hill, 500 feet high, three sides of which consist of almost perpendicular precipices. The fourth side, though steep, is accessible; but the fortifications guard every assailable part of it by ramparts and redoubts, line behind line. A long wall, curving and winding through the rocks, connects the upper with the lower fort, and the whole presents the appearance of a fastness built with a skill and knowledge of fortification unusual in Southern India. On the plain below is the old palace of its chiefs, now used as a halting-place for officials. Round about

the fort are many of the wild barren hills characteristic of this part of the country, and here they are even more picturesque than usual.

'They are beautiful,' one writer has said, 'under almost every aspect; whether on a bright sunshiny day with the sun's beams glancing from the bare rocks, and throwing the stony hills into a bold contrast with the green and narrow valleys lying between them, or as seen on a moonlight night from the windows of the old Gurramkonda palace, when the valleys lie dark and sleeping below, with the gloomy lofty rocks erect above them, as if on guard, each outline and almost each stone appearing plainly defined against the silvery sky behind; or else when towards evening a squall comes rolling up from the north-east, enveloping first one hill and then another in clouds of mist and rain, while the valleys are still smiling in the sunshine. Under every aspect the scene is a beautiful one, and the old palace of Gurramkonda forms a favourite halting-place.'

Gurramkonda was the capital of the Carnatic Bālāghāt at the beginning of the eighteenth century. Afterwards, when held by a local chief under the Nawāb of Cuddapah, it was of such importance that the tenure was purely military, and the governor had the privilege of coining money. When Mīr Sāhib betrayed Sīra (1766), he received Gurramkonda (which had at some former time been held by his ancestors) as a *jāgīr* from the Marāthās. Two years later he made it over to Haidar Alī, his brother-in-law. In 1771 Saiyid Shāh, Haidar's general, surrendered it to Trimbak Rao. Tipū recaptured it in 1773. In 1791 the Nizām's forces, aided by a British battery under Captain Read, besieged Gurramkonda and captured the lower fort; but the citadel held out till the peace, when the place was ceded to the Nizām. In 1800 it was transferred to the Company, with the rest of the District of Cuddapah.

How the place got its name of 'horse-hill' is not clear. The rock itself bears no resemblance whatever to a horse. The local legend says the appellation was derived from the fact that a horse which was supposed to be the guardian of the fort was kept on the top of the hill. As long as the horse remained there, the fort would be impregnable. For generations, this horse (or at all events one of its descendants) was kept in a stable on the summit of the hill. At length a Marāthā thief climbed up the perpendicular rock by driving long iron nails into it. He reached the top, gained the stable, and, wonderful to narrate, conveyed the horse down by the same way by which he had come. He reached the foot of the hill in safety, but, while stopping in a grove to rest, was captured with the horse. The

governor of the fort, astonished at the boldness and skill of the thief, contented himself with inflicting the comparatively lenient punishment of cutting off both his hands. But the spell was broken, the divine horse had been carried away, and when next the fort was attacked it fell. Near the fort is the tomb of Mīr Rājā Alī Khān, uncle of Tipū Sultān, and several other Musalmān buildings. A Persian inscription on the tomb contains an epitaph with the date of Alī Khān's death (A.D. 1870).

Horsleykonda ('Horsley's hill,' so named from Mr. W. D. Horsley, a former Collector, who was the first to build on it, about 1870).—A small hill in the Madanapalle *tāluk* of Cuddapah District, Madras, situated in 13° 39′ N. and 78° 25′ E., about 9 miles from Madanapalle. The original name of the hill was Yenuga-Mallammakonda, and local tradition says that it was so called because in olden days a saintly lady named Mallamma lived on the top of it and was regularly fed by elephants (*yenugulu*). The hill differs from the rest of those in the upland *tāluks* of Cuddapah in that its summit, about 4,100 feet above the sea, is covered with vegetation and is not quite bare, as usual. Here there is a pretty valley full of trees, on one side of which are three bungalows belonging to the Forest department and the missionaries of the District. The climate is delightful, being free from fever and eighteen degrees cooler than the low country round Cuddapah town. The hill was for a long time supposed to be haunted by demons; and when building on it was first begun, it was with the greatest difficulty that workmen could be persuaded to go up. *Sāmbar*, hog, bears, and jungle-fowl are found in its ravines, and an occasional tiger visits it.

Jammalamadugu Town.—Head-quarters of the subdivision and *tāluk* of the same name in Cuddapah District, Madras, situated in 14° 51′ N. and 78° 14′ E., on the left bank of the Penner river. Population (1901), 13,852. It is a busy centre of trade, with large exports of indigo and cotton. Cloths are also manufactured on hand-looms. The car-festival of Narapuraswāmi, held in May, continues for ten days and is attended by many people from surrounding villages. The place is a station of the London Missionary Society, which possesses a fine hospital, and also of the Society for the Propagation of the Gospel.

Kadiri Town.—Head-quarters of the *tālūk* of the same name in Cuddapah District, Madras, situated in 14° 6′ N. and 78° 10′ E. Population (1901), 10,493. A large temple here (one of the most famous in the District) is dedicated to

Narasimha, to whose festival many pilgrims resort in the early part of the year. It is said that an image of Narasimha was found in an ant-hill under a *chendra* tree, but the same story is told of other places. The name of this tree in Sanskrit is *khadri*; and tradition states that when the jungle was cleared by Ranga Nāyudu, a local chieftain of Patnam, and the temple was built, this name was given to the town which arose round the shrine. It was for a long time the practice to let loose a tiger or leopard at the festival here in January and shoot at it, but one year a bystander was shot instead, and the custom was prohibited by the Collector. Two days after the car-procession, Paraiyans and other low-caste people—contrary to all precedent,—are allowed to enter the temple. They bathe in the river close by and pass into the building in great crowds, carrying small bundles containing coin and jewels wrapped up in cloths, which they present to the god. These bundles are received by a person employed by contractors who farm the privilege.

Kadiri shows signs of having at one time been a Musalmān town. Though the existing buildings bear no trace of Muhammadan architecture, for two miles round there is a large number of tombs and mosques, mostly decayed but some still well preserved. The place was formerly the seat of a local chieftain. When Munro took over the country he sent for the chief to settle with him the amount of revenue he was to pay. The man refused to come, so a detachment was sent against him. They surprised the fortified temple in which he had taken post, but he escaped in the confusion. His possessions were, however, confiscated. Since the town became a station on the South Indian Railway, it has increased in importance as a trade centre. A brisk business in grain is transacted. There is a branch of the London Missionary Society.

Madanapalle Town (*Madana*, 'the god of love,' and *palle*, 'a hamlet').—Head-quarters of the subdivision and *tāluk* of the same name in Cuddapah District, Madras, situated in 13° 33′ N. and 78° 31′ E. Population (1901), 14,084. It is also the head-quarters of the Executive Engineer and the Assistant Superintendent of police, and contains a station of the London Mission. It was formerly the seat of a local chieftain who paid a revenue of Rs. 43,000 to the paramount power; but as Munro found that he had no good title to some of the villages in his possession, he was allowed to rent only one of the two villages to which he proved a right, and a deduction from the rent was allowed him for maintenance. He is stated to have had some claims to indulgence, since he had held a

Company's lease from 1791 and had also submitted immediately to the British rule when the country was transferred in 1800. His family soon afterwards became extinct. Madanapalle adjoins the Mysore plateau and is 2,250 feet above the level of the sea. Consequently it is far cooler than the lower parts of the District, and is a favourite station with pensioned native officials. It is a picturesque place, being surrounded by wild hills and containing beautiful trees. The nearest railway station is Chinnatippasamudram, 7 miles away, but the construction of the line has increased the commercial importance of the town. There is a weekly market, to which merchants from Punganūru and other places in North Arcot District bring commodities for sale.

Pālkonda Hills (*Pāl*, 'milk,' and *konda*, 'a hill,' said to be so called from the excellent grazing upon them).—Range of mountains in Cuddapah District, Madras, lying between 13° 36′ and 14° 25′ N. and 78° 16′ and 79° 15′ E.; average elevation above the sea, about 2,000 feet; highest point, Buttaid, 3,060 feet. Starting from the sacred hill of Tirupati, the hills run north-west through Cuddapah District for 45 miles and then turn nearly due west, passing across to the frontier of Anantapur. The latter portion is sometimes called the Seshāchalam range. Mr. Gribble describes these hills as follows in the *Cuddapah Manual*:—

'This is not only the largest and most extensive of all the Cuddapah ranges, but it also presents very marked features, and differs in appearance from the others. The Tirupati hill is 2,500 feet above the sea, and the Pālkonda range continues at about the same uniform height very nearly throughout the whole of its extent. There are very few prominent peaks; and at a distance of a few miles it presents the appearance, to any one standing on the inside portion, of a wall of unvarying height, shutting the country in as far as the eye can reach. The top of this range is more or less flat, forming a table-land of some extent. On both sides the slopes are well clothed with forests, which near the railway are especially valuable, and form the important Bālapalle, Yerraguntlakota, and Kodūr Reserves. A noticeable feature in this range, and especially on its south-western slopes, is the manner in which the quartzite rocks crop out at the summit. The rock suddenly rises perpendicularly out of the slope, and is wrested and contorted into various fantastic shapes, which not unfrequently give the appearance of an old ruined castle or fort. These hills were in former days a favourite resort of dacoits or gang-robbers, probably because they are not so feverish as the other hills of the main division. They are now nearly free from these pests of society. Wild beasts, however, are still to be found.'

Tigers are occasionally seen; of leopards there are a large number, and they are very destructive; a few *sāmbar* are to be found and some bears, but the hills have been too much exploited to afford a good field for sportsmen.

Porumāmilla.—Town in the Badvel *tāluk* of Cuddapah District, Madras, situated in 15° 1′ N. and 79° E. Population (1901), 5,522. It possesses a fine tank. There are the ruins of an old fort to the north of the town, and the place was formerly the seat of a local chieftain. An inscription on stone in front of the temple of Bhairava, which stands on an eminence close to the tank, is dated A. D. 1369, and records that Bukka Bhūpati's son Bhāskara Bhūpati, who reigned at Udayagiri, constructed the tank. The date corresponds with that of the reign of Bukka I of Vijayanagar, and if this is the chief mentioned the inscription is of importance. There is a very old temple of Lakshmīkāntaswāmi in the town, which is said to have been repaired by the above-mentioned Bhāskara Bhūpati. To the west of the place, on the bank of the Sagileru river, are some stone cromlechs.

Proddatūr Town.—Head-quarters of the subdivision and *tāluk* of the same name in Cuddapah District, Madras, situated in 14° 44′ N. and 78° 33′ E. Population (1901), 14,370. It contains a District Munsif's court, and two cotton presses which work during the cotton harvest.

Rāyachoti Town (*Rājā-vīdu*, 'the abode of the Rājā').—Head-quarters of the *tāluk* of the same name in Cuddapah District, Madras, situated in 14° 4′ N. and 78° 46′ E. Population (1901), 7,123. It stands on the banks of the little Māndavi river, and seven roads converge on it. It has some trade and a weekly market. An old temple here is dedicated to Vīrabhadraswāmi, and a large number of people (about 6,000) attend the annual car-festival. Two odd superstitions are connected with the feasts at this shrine. Early in the morning of the day of the car-procession a big ruby of the size of a nutmeg is placed between the two eyebrows of the god to represent the third eye of Siva. Opposite to the idol a large heap of boiled rice is placed so as to catch the first glance of the ruby eye. Till this is done, the doors are shut, and the people are prevented from going in front of the idol, lest they should be instantly killed by the rays from the third eye. The person who conducts the ceremony stands behind the idol, out of the range of the eye, and stops there till the rite is over. At another time of the year the god is taken out hunting. He is carried to a small open building supported by stone pillars half

a mile outside the town, and there placed on the ground. Beneath the flooring of this building are a large number of scorpions. While the god is taking his rest therein, the attendants, it is said, can catch these scorpions and hold them in their hands without being stung, but directly he leaves it the creatures resume their old propensities.

Rāzampeta.—Head-quarters of the Pullampet *tāluk* of Cuddapah District, Madras, situated in 14° 12′ N. and 79° 10′ E. Population (1901), 15,287. It is a station on the Madras Railway, but otherwise it is of little interest.

Sompalle.—Village in the Madanapalle *tāluk* of Cuddapah District, Madras, situated in 13° 51′ N. and 78° 16′ E. Population (1901), 3,656. It is known locally for its manufacture of glass bangles, which are made from alkaline earth found in the neighbourhood and are in considerable demand all over the District. It contains an old Vaishnava temple dedicated to Chennakeswaraswāmi, in which are some exquisite stone carvings. In front of this stands a monolithic lamp-post of very graceful proportions, upwards of 50 feet in height. The temple is included in the list of ancient monuments selected for conservation by Government, some portions of it being unique.

Sompalle was formerly the seat of a local chief. During the days of the Vijayanagar kings his family obtained five villages as an estate, and the grant was continued by the Sultāns of Golconda on condition that he did military service, when called upon, with 400 foot-soldiers. The villages were resumed by the Marāthās in 1756, but given back the next year. The chief was expelled in Haidar Alī's time by Mīr Sāhib, but again possessed himself of his estate during Lord Cornwallis's campaigns against Tipū. The last survivor of the family was a pensioner of the British for many years.

Talakona.—Valley, waterfall, and temple in the Vāyalpād *tāluk* of Cuddapah District, Madras, situated in 13° 47′ N. and 79° 14′ E., in the PĀLKONDA HILLS. The approach to the place runs first over uneven country, dotted in the hollows with rice and sugar-cane cultivation, and interspersed with numerous little tanks and immense many-stepped wells. Farther on the richer land gives place to tracts of scrub jungle, gram-fields, and fine tamarind-trees, lapsing, as one approaches the foot of the Pālkonda Hills, into thicker jungle and rocky eminences crowned with giant tors and boulders in grotesque confusion. After passing the last inhabited village outside the belt of forest with which the hills are fringed, the path ascends gradually, crossing

stony streams and stretches of sand marked everywhere with the tracks of *sāmbar*, spotted deer, and wild hog, until it reaches the entrance to the deep cleft in the hills in which is situated the waterfall of Talakona. Through dense bamboo jungle, shaded by wild mangoes and other large trees, the way leads along the stream, which hurries from the waterfall until it gains a little open space cleared on the bank of the torrent round a small temple and a rest-house. As evening falls, jungle-fowl call to each other from all parts of the thick undergrowth on either side of the stream, *sāmbar* bell in the forest on the slopes, and the owners of the cattle grazing in the forest drive them into enclosures strongly fenced with thorns and lighted with fires to keep off prowling tigers.

The path to the falls leads along the edge of the stream through thick growth relieved by clumps of date-palms and the handsome sulphur-yellow flowers of the wild hemp. Passing two ancient mango trees known as Rāma and Lakshmana, it rapidly ascends the side of the beautiful little valley at the bottom of which the stream hurries along. Immediately overhead rise the cliffs, clothed with trees for two-thirds of their height, but above that consisting of a steep scarp of bare red rock, the colours of which are in wonderful contrast to the varied shades of green of the forest below. Beneath is the stream, visible now and again through the tangled growth. As it ascends, the path gradually narrows until it is only a yard or so wide as it clings to the side of the valley, and then it suddenly turns and faces the waterfall. The stream above which the path has been running here precipitates itself from the top of the red scarp on the crest of the hills, falls some 70 or 80 feet down a dark hollow on to a black ledge of rock, striking it in a smother of spray, and thence, in numerous smaller falls, hurries to the foot of the valley below the path. To bathe in this fall and in another higher up the cliff purifies from all sin; and on Sivarātri day, in the last week of February, thousands of people consequently brave the tiring journey hither through the jungle and the real and fancied perils which beset it. Arrived at the spot, they first pass through the fall just described, when the water comes rattling and stinging on their shoulders like large hailstones. Then they cross the ledge on to which it dashes and gain a path which leads to the upper fall. This path passes a cave, through which (it is said) a local personage of great sanctity used to travel by underground ways to the holy temple of Tirupati, and up hundreds of steps, which have an aspect of great antiquity and must have taken years of

expensive work to put in position. At the top, the river runs placidly along over a flat rocky bed. A hundred yards farther on is the upper fall. It is only about 12 feet high and rolls quietly over the edge of its rocky bed to a platform below, and thence from a clear pool falls some 60 feet to an inaccessible hollow.

At the time of the festival the scene here is one to be remembered: smooth black rocks, green trees, and blue sky above; the fall curving over the lip of the little hollow; the bathers in white and red cloths, their bodies glittering with drops of water; and the priest reciting the appropriate words as each in succession passes under the falling water and sees his sins flowing through the pool below and down the glen to be carried through the plains to the all-absorbing sea.

After the bath in the two falls the pilgrims journey back in their wet clothes to the little temple already mentioned at the entrance to the valley, and there lie prostrate before the god, sometimes for hours, till they have a vision, which is regarded as the message of the deity to the worshipper. Hundreds of them may be seen there, lying face downwards in their wet clothes for hours, shivering with cold but waiting patiently for the message. A large proportion of them are childless wives or those who have no male offspring, and they undertake this toilsome pilgrimage in the hope that they will thereby be blessed with a son.

Vempalle.—Town in the Pulivendla *tāluk* of Cuddapah District, Madras, situated in 14° 22′ N. and 78° 28′ E., on the left bank of the river Pāpaghni, about 22 miles south-west of Cuddapah town. Population (1901), 10,793. A curious temple to Nandi stands on a round hill overhanging the river. Regarding the Pāpaghni valley the following legend is currently believed. When Rāma conquered Rāvana in Ceylon and rescued Sītā, he dispatched the news of his victory to the country where he had lived so long in exile. On hearing it, the local governor here stretched across the gorge of the river a wreath of golden flowers. From that day to this, though the original wreath has long since vanished, its semblance appears, shortly before their death, to those whom the gods love. The story goes that as Sir Thomas Munro passed through this gorge on his farewell tour through his beloved Ceded Districts, he saw the wreath and pointed it out to his native followers. They could not themselves see the wreath, but they knew only too well the legend connected with it. Within a few days Sir Thomas died of cholera.

KURNOOL DISTRICT

Kurnool District (vernacular *Kandenavolu*).—One of the four CEDED DISTRICTS in the Madras Presidency, lying between 14° 54′ and 16° 18′ N. and 77° 21′ and 79° 34′ E., with an area of 7,578 square miles. It is bounded on the north by the TUNGABHADRA and KISTNA rivers (which separate it from the Nizām's Dominions); on the north-east by Guntūr; on the east by Nellore; on the south by Cuddapah and Anantapur; and on the west by Bellary.

Boundaries, configuration, and hill and river systems.

Two long ranges of hills, the NALLAMALAIS on the east and the Erramalas on the west, divide the District north and south into three well-defined sections: namely, the country east of the Nallamalais, that between this range and the Erramalas, and that west of the Erramalas. The easternmost of these sections, which includes the *tāluks* of Cumbum and Mārkāpur, is about 600 feet above sea-level and very hilly. Throughout the greater part of its length a range of hills known as the Velikondas (a part of the EASTERN GHĀTS) divides it from Nellore. Between this range and the Nallamalais to the west, several low parallel ridges cut up the country into valleys, and through these the hill streams draining the eastern slopes of the Nallamalais have forced their way. Some of the gorges thus hollowed out have been dammed, and tanks made in them for purposes of irrigation. The tank at CUMBUM, formed by an embankment across the GUNDLAKAMMA river, is the most magnificent instance of this enterprise. Two passes, the Mantralamma, or Dornal, and the Nandikanama, lead across the Nallamalais into the central section of the District, and the Southern Mahratta Railway is carried through the latter. This central section, the Nandyāl valley, is for the most part a flat open valley, between 700 and 800 feet above sea-level and covered with black cotton soil. It is crossed from east to west by the great watershed between the Kistna and Penner river systems; and it is drained to the south by the Kunderu, a tributary of the latter river, and to the north by the Bavanāsi and other minor streams which fall into the former. From the east, the Nallamalais run down to meet it, while on the

west the Erramalas rise up gradually into a series of flat-topped plateaux. In the dry season the valley presents a most arid appearance, but the Nallamalais on the east of it are always green. It includes the *tāluks* of Nandikotkūr, Nandyāl, Sirvel, and Koilkuntla, and the Native State of Banganapalle. The Kurnool-Cuddapah irrigation canal passes down the centre and commands a large area. Passing westwards over the Erramalas, which from the west present a clear and well-defined scarp gradually diminishing in height from south to north, the western section of the District, consisting of the two *tāluks* of Pattikonda and Rāmallakota, is reached. This section forms the north-eastern extremity of the Mysore plateau and is drained towards the north by the Hindri, a tributary of the Tungabhadra. The southern portion (except where it opens out into the Bellary black cotton soil plain) is much broken by rocky hills and long ridges of granitoid gneiss, and is covered with thin, poor, gravelly land. Northwards and westwards the country opens out, until near Kurnool it becomes an almost unbroken plain of black cotton soil.

The chief rivers of Kurnool are the Tungabhadra and Kistna already mentioned, while several smaller streams drain the three sections referred to above. The chief of those in the eastern section are the Gundlakamma and its tributaries, the Ralla Vāgu, Tīgaleru, Kandleru, and Duvvaleru, all rising in the Nallamalais. The Gundlakamma has its source near Gundlabrahmeswaram and enters the plains through the gorge of Cumbum, where it is held up by a dam 57 feet in height to form the Cumbum tank, about 15 square miles in extent. The river carries away the surplus escape of the tank, receives several tributaries, and runs in a north-easterly direction, forming the north-eastern boundary of the District. The Sagileru, also rising in the Nallamalais, flows south and drains the country towards the Penner in Cuddapah District. The chief rivers in the central section of the District are the Kunderu and Bavanāsi. The former rises in the Erramalas, and after receiving its most important tributary, the Galeru or Kāli, which rises in the Nallamalais, flows southwards to join the Penner in Cuddapah District. The Bavanāsi, which rises in the Nallamalais, drains into the Kistna the country lying to the north of the watershed between that river and the Penner. The only river of importance in the western section is the Hindri, which rises in the Pattikonda *tāluk* and falls into the Tungabhadra at Kurnool town. Its chief tributaries are the Dhone Vāgu and the Hukri. The portion of this western

section which lies to the north of the railway line drains into the Hindri

Geology. Geologically, Kurnool is situated in the centre of a basin occupied by the two great azoic formations known as the Cuddapah and Kurnool systems. The geological characteristics of each of the three natural divisions of the District are distinct. The eastern section belongs to the Cuddapah system, the prevailing rocks of which are slates over quartzites. The central portion belongs to the Kurnool system, the chief rocks of which are limestones and quartzites. The former make very good building material. The portion of the western section adjoining the Erramalas belongs to the Cuddapah system, while that part of it which lies in the extreme west of the District is occupied by crystalline or Archaean formations consisting of granitic rocks of no peculiar interest.

Botany. The Nallamalai forests, which are about 2,000 square miles in extent, are the finest in this part of the Presidency and contain a large variety of trees. The chief of these are referred to below under Forests. Elsewhere the flora of Kurnool is that of the drier zones of the Presidency. Fibre-producing plants and trees are common, among them being roselle, some of the *Bauhinias*, *Butea frondosa*, and *Calotropis gigantea*. In the villages, mangoes, tamarinds, and *iluppais* grow freely in plantations and groves, and date-palms (*Phoenix sylvestris*), which produce the alcoholic liquor of the District, flourish in the damper hollows. Coco-nut palms, however, are not grown extensively, the soil being unsuited to them, and palmyras are only to be seen in a few villages.

Fauna. The hill country contains all the game usual to such localities. Tigers and bears are found on the Nallamalais, while wolves are met with all over the District, though not in large numbers. Crocodiles infest the Tungabhadra and Kistna, and in some places lie in pools near the bathing *ghāts* where human victims are easy to obtain. Mahseer of unusual size are occasionally taken in these rivers. The game birds include sand-grouse and jungle-fowl.

Climate and temperature. The climate of Kurnool cannot be said to be healthy. The temperature in the shade goes up to 112° in the months of April and May and falls to 67° in November, the mean averaging about 82°. The period from February to May is hot, particularly so in April and May. In June the south-west monsoon begins, and it lasts till September. The north-east monsoon brings some rain in October. Malarial fever is very prevalent almost everywhere, and especially so in the

villages bordering on the Nallamalais. Guinea-worm and enlarged spleen, from which many of the inhabitants suffer, are due to the impurity of the water-supply.

Rainfall. The rainfall is light and irregular, and the whole of the District is included within the famine zone of the Presidency. The central or Nandyāl valley section has, as a whole, the least scanty fall in the District; but on the other hand parts of it, such as Owk, have the lightest. The average annual rainfall there is under 18 inches; for the whole District it is 26 inches. Except in the eastern section, where both the monsoons contribute equally, more than three-fourths of the annual supply is received during the south-west monsoon (June to September), which is consequently most important to the welfare of the country. This current, however, is exceedingly capricious and uncertain, and Kurnool is liable to frequent scarcity. Natural calamities other than famine have happily been rare. In 1851, however, unusually heavy floods in the Tungabhadra destroyed the crops in several villages, and washed away some buildings in the lower part of Kurnool town.

History. Up to the conquest and occupation of the District by the Vijayanagar kings, nothing definite is known of its history; but it seems probable that it was successively in the hands of the Chālukyas, the Cholas, and the Ganpatis of Warangal. About the sixteenth century, Krishna Rāya, the greatest of the Vijayanagar dynasty, annexed the whole of it. On the break up of his line after the disastrous defeat at Tālikotā in 1565 by the united Deccan Muhammadans, the District was overrun by one of the victors, the Kutb Shāhi Sultān of Golconda. It was also the scene of later Musalmān invasions. In 1687 Aurangzeb subdued the country south of the Kistna, and Ghiyās-ud-dīn, one of his generals, took Kurnool. Shortly afterwards the District was conferred as a *jāgīr* on Daud Khān, a Pathān general who had rendered important military service to the Mughals. Himāyat Khān succeeded in 1733. During his rule, in 1741, the Marāthās invaded the District, and their ravages are even now described in popular ballads. Himāyat Khān played an important part in the Carnatic Wars of the eighteenth century, proving treacherous alternately to the English and to the French. Kurnool was besieged and carried by assault in March, 1751, by Salābat Jang and the French general Bussy. In 1752 Munavvar Khān became Nawāb. In 1755 Haidar Alī, who subsequently usurped the Mysore throne, marched against Kurnool, and levied tribute. In the redistribution of territory that followed the final defeat and

death of Tipū, Haidar's son and successor, in 1799, the District fell to the share of the Nizām. He ceded it in 1800 to the British, in payment for a subsidiary force to be stationed in his territories; but the Nawāb of Kurnool was left in possession of his *jāgīr*, subject to a tribute of a lakh of rupees. The Pindāris plundered the country in 1816 during the time of Munavvar Khān. The latter was succeeded in 1823 by his brother Ghulām Rasūl Khān, the last of the Nawābs. In 1838 this man was found to be engaged in treasonable preparations on an extensive scale, and in the next year he was sent to Trichinopoly, where he was subsequently murdered by his own servant. His territories, with the minor *jāgīrs* enjoyed by his nobles and relatives, were annexed, and the members of his family were liberally pensioned. Since then the peace of the District has been but once disturbed, by a descendant of a dispossessed *poligār* in 1846. He was, however, captured and publicly hanged. From 1839 to 1858, the territory taken from the Nawāb (consisting of the four *tāluks* of Rāmallakota, Nandikotkūr, Nandyāl, and Sirvel) was administered by a British Commissioner and Agent. In 1858 three *tāluks* of Cuddapah (Koilkuntla, Cumbum, and Mārkāpur) and the Pattikonda *tāluk* of Bellary were added to Kurnool proper, and the whole was formed into the present Collectorate.

Archaeology. Kurnool possesses few remains of archaeological interest. The Srīsailam plateau on the Nallamalais contains the ruins of old forts, houses, and towns, showing that it was inhabited by prosperous communities in olden days. Almost every town in the District has a ruined fort and every village its own keep. Dolmens or cromlechs are found in some villages of Mārkāpur and Cumbum. The most important Hindu temples are those at Srīsailam and Ahobilam on the Nallamalais.

The people. The number of towns and villages in the District is 3 and 751 respectively. It is divided into eight *tāluks*, of which statistics according to the Census of 1901 are given on the next page.

Except in the cases of Rāmallakota, Sirvel, and Cumbum (the head-quarters of which are respectively Kurnool, Allagadda, and Giddalūr), the head-quarters of the *tāluks* are at the places from which each is named. The density of the population in Mārkāpur and Nandikotkūr is less than 100 per square mile, and the District as a whole is more sparsely populated than any other in the Presidency. The population in 1871 was 914,432; in 1881, 678,551; in 1891, 817,811; and in 1901, 872,055. The great decline in 1881 was due to the 1876-8

famine, and the population has not even yet regained the numbers then lost. During the decade 1891–1901, the District again suffered from adverse seasons, especially in the Cumbum and Mārkāpur *tāluks*, and the population of both these areas declined; but on the whole the advance was little below the normal. The three towns in Kurnool are the two municipalities of KURNOOL (population, 25,376), the head-quarters, and NANDYĀL (15,137), and the Union of CUMBUM (6,502). The total urban population is less than in any District except the Nīlgiris, and as many as 95 per cent. of the people live in villages. Classified according to religion, Hindus number 728,782; Muhammadans, 107,626, or 12 per cent. of the total, a higher proportion than in any other Madras District except Malabar; and Christians, 30,043, or 4 per cent. The last have nearly trebled during the past twenty years, and they increased by 50 per cent. in the decade *1891–1901*. About three-fourths of them are Baptists and another fifth Anglicans. The same unexplained deficiency of females occurs in Kurnool as in the other Deccan Districts.

Tāluk.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Mārkāpur	1,140	...	76	94,293	83	− 5·7	3,342
Cumbum	1,061	1	101	115,881	109	− 1·5	5,353
Nandikotkūr	1,358	...	102	104,167	77	+ 17·6	4,398
Rāmallakota	846	1	106	142,855	169	+ 14·3	6,121
Pattikonda	1,134	...	104	143,033	126	+ 3·1	4,143
Nandyāl	854	1	91	110,292	129	+ 14·5	5,516
Sirvel	613	...	86	73,387	120	+ 12·6	3,234
Koilkuntla	572	...	85	88,147	154	+ 1·9	4,603
District total	7,578	3	751	872,055	115	+ 6.6	36,710

Their castes and occupations. The District contains a smaller proportion of Eurasians than any other, and a smaller percentage of Europeans than any other except Cuddapah. Except for the wandering tribe of the Kuravans, the gipsy Lambādis, and 23,000 Kanarese-speaking Kurubas (shepherds), the Hindus are nearly all Telugus, the most numerous caste being the Kāpu cultivators, 121,000 strong. Next to them come the Boyas, numbering 86,000. They are the great *shikāri* caste of the Deccan, and are fine fearless fellows. Nowadays many of them have taken to agriculture; and two well-marked divisions, the Myāsa (forest) Boyas and the Uru (village) Boyas, have arisen, of

whom the latter are the more advanced in their ideas. The caste is interesting as being one of the few in which survivals of totemism have been found. Perhaps, however, the most curious of the Kurnool castes are the forest people called the Chenchus, who mainly live on the Nallamalais in small clusters of little round huts. Of the Musalmāns the majority, as usual, are Shaikhs, but Dūdekulas (a mixed race which follows many Hindu customs) and Saiyids are also numerous. The occupations of the people present no points of particular interest. As many as 74 per cent. subsist by callings connected with agriculture or pasture; and the only directions in which their means of livelihood show notable variations from the normal are in the considerable percentage of weavers, and the small proportion of those who live by the professions.

Christian missions. The American Baptist Mission has stations at Kurnool, Cumbum, and Mārkāpur. The London Mission was formerly established in Nandyāl, but has now resigned that field to the Society for the Propagation of the Gospel. The Roman Catholic missions are in a less flourishing condition than farther south. Their chief station is Polūr, near Nandyāl.

General agricultural conditions. The soils of the District are either red or black. In the eastern section the prevailing variety of land is red, of a poor, thin, gravelly description, though patches of black cotton soil and red clay are found here and there in the valleys of the Tīgaleru, Gundlakamma, and Sagileru. These red earths, being generally formed from disintegrated particles of the gneiss, mica, quartz, and altered sandstone of which the hills are composed, are generally speaking inferior, lying over rock which is only a few inches below the surface. The poverty of the soil is, however, in some degree compensated by the facilities which exist for the digging of wells on the river banks; almost all the well-irrigation in the District is confined to this section. The central or Nandyāl valley section consists almost entirely of black cotton soil. The southern part of the western section is covered with a thin, poor, gravelly earth, but northwards and westwards stiff black cotton soil replaces the gravels. Roughly speaking, a fourth of it consists of red earth and the remaining three-fourths of black cotton soil. The District is essentially one producing 'dry' crops, and the sowing season is spread over the period from July to November. The great part of the early sowings up to August takes place on the light soils, and those which follow, between September and November, are on the heavier land. By the middle of November sowing is practically over.

Chief agricultural statistics and principal crops.

The District is almost entirely *ryotwāri*, there being no *zamīndāris* in it. The area of the 'whole *inām*' villages is 204 square miles. Statistics for 1903–4 of the area for which particulars are on record are given below, in square miles:—

Tāluk.	Area shown in accounts.	Forests.	Cultivable waste.	Cultivated.	Irrigated.
Mārkāpur	1,117	557	76	309	29
Cumbum	1,031	599	95	306	21
Nandikotkūr	1,335	709	75	472	42
Rāmallakota	849	65	77	576	9
Pattikonda	1,056	112	60	743	9
Nandyāl	862	351	3	382	20
Sirvel	686	202	26	332	19
Koilkuntla	568	54	9	364	8
District total	7,504	2,649	421	3,484	157

Forests occupy 34 per cent. of the total area, and the cultivable waste is only about 5 per cent. The staple food-grains are *cholam* (*Sorghum vulgare*) and *korra* (*Setaria italica*), the area under them being 884 and 598 square miles respectively, or 27 and 19 per cent. of the total area cropped in 1903–4. The former is the most important crop of the four central and two western *tāluks*, while *korra*, *rāgi* (*Eleusine coracana*), and *cambu* (*Pennisetum typhoideum*) are the chief staples of the two *tāluks* of the eastern section. Nearly 90 per cent. of the area under *rāgi* and 50 per cent. of that under *cambu* is in these two *tāluks*. Generally speaking, *korra* and *cambu* are raised on the poorer red soils, while *cholam* is the chief crop of the black cotton soils. Horse-gram is also extensively grown, especially in Pattikonda, Cumbum, and Mārkāpur. The area under rice is comparatively small, being only 128 square miles. Next to *cholam* and *korra*, cotton is the crop most extensively cultivated, covering 430 square miles. Almost the whole of it is raised in the five black soil *tāluks* west of the Nallamalais. The area under oilseeds is also comparatively extensive, being 217 square miles; nearly two-thirds of this lie in the two *tāluks* of Rāmallakota and Pattikonda.

Improvements in agricultural practice.

The extension of the area of holdings during the last thirty years has amounted to 7 per cent.; and considering the terrible mortality during the great famine of 1876–8 and the fact that the population is still 4 per cent. below what it was in 1871, this rate of increase may be regarded as fair. 'Wet' holdings, however, have remained almost stationary in area, notwith-

standing the facilities afforded by the KURNOOL-CUDDAPAH CANAL. There are still large areas of arable land in all the *tāluks* except Nandyāl, Sirvel, and Koilkuntla. Very little improvement is perceptible in the quality of the crops grown, and the ryots cling to their primitive methods of cultivation. The Mauritius sugar-cane, which is said to have been introduced in 1843, has however ousted the indigenous variety, except in Cumbum. Unless during famine or scarcity, the Kurnool ryots have not been anxious to avail themselves of the benefits of the Loans Acts. The total amount advanced during the sixteen years ending with 1904 was a little over 7 lakhs; but the greater part of this appears to have been spent on the improvement of land, such as the removal of deep-rooted grass, the building of stone boundary walls, &c., and very little in the digging of wells. Most of the few wells which have been made are in the Mārkāpur subdivision.

Cattle and sheep. Kurnool cannot be said to be rich in horned cattle. Two-thirds of the animals used, especially those intended for the ploughing of the heavy black cotton soils, are imported from Nellore, Guntūr, and Kistna. The cattle bred in the District itself are smaller, but more hardy, than the coast bullocks. They are good trotters, but unfit for tilling heavy land. The eastern section of the District is comparatively richer than the rest in cattle and sheep, on account of the never-failing pasture on the Nallamalais. In the central section considerable herds of breeding cattle are maintained in the villages bordering upon the Nallamalais and Erramalas, where there is abundant pasturage; but in the central part of the valley few animals are kept besides the plough bullocks, most of which are imported animals of the Nellore breed. In the western *tāluks* also the stock for the cotton soil land is provided from Nellore. A considerable number of buffaloes are bred for export. There are three varieties of sheep—the black, the brown, and the white. The last variety is confined to Cumbum and Mārkāpur. The species in the western *tāluks* are black and brown. The black sheep yield a short wool, which is shorn twice a year and made into rough blankets. The brown sheep are covered with hair instead of wool and are only valued for their flesh. Goats are bred mainly for their manure. There is no local breed of ponies.

Irrigation. The District is essentially an unirrigated area. Of the total *ryotwāri* and *ināmi* area cultivated in 1903–4, only 157 square miles, or 4½ per cent., were irrigated. Of this portion 74 square miles were watered from tanks, 32 square miles from Govern-

ment canals and channels, and 31 square miles from wells. More than one-third of the area supplied by tanks is in the two *tāluks* of Mārkāpur and Cumbum, where the country is best adapted for the formation of reservoirs. The biggest tanks in the District are those at Cumbum, irrigating 9,000 acres of first and second crop, at Nandyāl, and at Owk and Timmanāyanipet in the Koilkuntla *tāluk*. In former days ryots were encouraged to form tanks at their own cost, in return for the grant of lands free of rent or the assignment of a portion of the land revenue for their maintenance and repairs. These were called *dasabandam* sources. The greater part of the area irrigated by them (more than 85 per cent.) lies in the single *tāluk* of Mārkāpur. The Kurnool-Cuddapah Canal irrigates 25,000 acres in the five *tāluks* through which it passes, and more than a third of this area lies in Nandikotkūr. In some of the villages bordering upon the Nallamalais and Erramalas the hot springs which lie at the foot of these ranges are the chief sources of irrigation. The most important of these, all of which are perennial, are at Mahānandi, Kālwa, Dhone, and Brahmagundam. Of the total area irrigated from wells two-thirds is in the single *tāluk* of Mārkāpur. The number of these sources is 10,868. In Pattikonda *tāluk* there are many *doravu* wells, or baling-places made on the banks of rivers and streams. The lands served by them were classed as 'wet' at the settlement. The numerous jungle streams in the District are not used directly for irrigation, except where the configuration of the country has facilitated the formation of tanks. There are, however, numerous *doravu* wells on their banks—especially along the Gondlakamma, Hindri, and Bavanāsi. The lands supplied by those on the banks of the Gundlakamma are exempted from water rate on account of the high cost of constructing the wells, but those irrigated from the others are charged with an additional assessment, and valuable garden crops are raised. Leathern buckets drawn up with a rope and pulley by cattle working down an inclined plane are universally used for lifting the water.

Forests. From both their extent and nature, the forests of Kurnool are important. Their total area in 1903–4 was 2,649 square miles, the Nallamalais alone comprising one vast expanse of 2,000 square miles. Next in importance are the forests on the Erramalas, and last the Velikonda forests. On account of the extensive area to be managed, the District has recently been divided into the two forest charges of East and West Kurnool. The greater part of the growth on the Nallamalais is still

untouched. This area affords ample pasturage at all times of the year, and to it are driven the cattle of the Districts of Nellore and Guntūr during the summer. It is the chief source of the fuel supplied to the Southern Mahratta Railway. The more valuable timber trees are teak, red-sanders, *nallamaddi* (*Terminalia tomentosa*), *egi* (*Pterocarpus Marsupium*), *jittegi* (blackwood, and *yepi* (*Hardwickia binata*). Sandal-wood is found near Srīsailam, but it is not as strongly scented as the wood of the Coimbatore and Mysore forests. Bamboos are also plentiful. The Velikonda forests contain the same species as the Nallamalais, but they do not grow to as great a size. The Erramala forests are of minor importance and contain no valuable timber. These hills are generally bare of growth on their flat tops; but the slopes are clothed with stunted trees and shrubs which, however, are only fit for firewood.

Minerals. The minerals of the District are hardly worked at all, but some Madras firms have taken out prospecting licences. Iron ore is plentiful on both the Erramalas and Nallamalais. That found on the Gani hill is said to be the best. Iron was smelted in a hill called Inapartikonda near Veldurti (Rāmallakota *tāluk*) till a few years ago, but the industry has now been abandoned. The chief smelting centre at present is Rudravaram, a village at the foot of the Nallamalais in the Sirvel *tāluk*. The ore worked here is generally a massive, shaly, iron sandstone. The iron produced is largely used for ploughs and other agricultural implements. Copper mines were formerly worked in Gani. Lead is found near Gāzulapalle at the foot of the Nallamalais in the Nandyāl *tāluk*. Diamond mines were formerly worked on a large scale in Banganapalle, Munimadugu, and Rāmallakota.

Arts and manufactures. The only important industries in the District are cotton-weaving and the manufacture of cotton carpets. The cotton-weaving is of the ordinary kind, only coarse cloths being made. Cotton carpets of a superior description are made at Kurnool and Cumbum. The manufacture of lacquered wares and paintings on leather is carried on in Nandyāl and Nosam (Koilkuntla *tāluk*). Thick woollen blankets are woven in some villages of the Nandikotkūr *tāluk*. There are four cotton presses, two at Nandyāl owned by Europeans, and two at Kurnool by natives. All four are worked by steam. They clean or press the local cotton for export to Bombay and Madras. In 1904 the two Nandyāl presses employed on an average 119 hands. The presses at Kurnool are smaller concerns, the average number of hands employed being less than twenty-five. The growing of rubber-producing plants has

recently been started in Kurnool under European supervision. A tannery has also been working there for the last four years.

Commerce. Commercially, the District is of small importance. The chief exports are cotton, turmeric, tobacco, *ghī*, gum, honey, melons, oilseeds, onions, indigo, timber, woollen blankets, cotton cloths, and cotton carpets ; while European piece-goods, salt, areca-nuts, coco-nuts, sugar, jaggery (coarse sugar), brass and copper utensils, cattle, and various condiments required for Indian households are the chief imports. There is usually no export of grain, but in 1900 a large quantity was sent to Bombay, where the distress was acute and prices correspondingly high. Trade is chiefly with the neighbouring Districts and Hyderābād. Salt, however, is imported from Bombay, and cotton is exported to that city and Madras. *Ghī*, melons, cotton carpets, and timber are sent to Hyderābād by the trunk road connecting the two places. Sugar and jaggery are obtained from North Arcot, and piece-goods and utensils from Bellary and Madras. Kurnool, Nandyāl, and Cumbum are the centres of trade for the western, central, and eastern divisions of the District respectively. Nandyāl is, however, outstripping Kurnool in commercial importance, as it is on the railway, while Kurnool is 33 miles from the nearest station. The Komatis are the chief merchants, but latterly many Musalmāns have taken to trade. Messrs. Volkart Brothers and Messrs. Binny & Co. have agencies at Kurnool and Nandyāl for their cotton business. Most of the internal trade is effected through the agency of weekly markets. Thirteen of these are under the management of the local boards, and the fees levied in them in 1903-4 yielded Rs. 1,850. The most important are those at Nandyāl, Gūdūr, Pattikonda, and Koilkuntla.

Railways and roads. The Southern Mahratta Railway (metre gauge) enters the District about 2 miles to the west of Maddikera in the Pattikonda *tāluk*, and runs across from west to east till it reaches Cumbum, where it turns northwards along the eastern border. It places all parts of the District within 30 miles of a railway, which taps at its eastern extremities the rich grain-growing deltas of the Godāvari and the Kistna, and is thus a valuable defence in time of famine. The line was opened for traffic to Nandyāl in 1887, and thence to Cumbum and Tadepalle in 1889-90. The Madras Railway (broad gauge) also touches the District in a corner of the Pattikonda *tāluk*.

The total length of metalled roads is 547 miles, and of unmetalled roads 171 miles, all of which are maintained from

Local funds. There are avenues of trees along 606 miles. The western section is fairly well provided with communications, trunk roads branching from Kurnool to Bellary, Gooty, Cuddapah, and Hyderābād. The Nandikotkūr and Nandyāl *tāluks* are also provided with good roads, the facilities thus afforded being supplemented by the irrigation canal which runs through the middle of them and is navigable throughout its course. The remaining four *tāluks* are deficient in road communications. There are two *ghāt* roads over the Erramalas—the Tammarāzupalle pass and the Rāmpur pass. Neither of the roads across the Nallamalais, namely, the Mantralamma pass and the Nandikanama pass (the latter of which was formerly the highway between the coast and the interior), is now much used, and they are becoming impassable.

Famine. The whole District lies within the famine zone, and has suffered nine times from want of rain since the beginning of the last century: namely, in the years 1804, 1820, 1824, 1833, 1853–4, 1866, 1876–8, 1891–2, and 1896–7. In 1873–4, also, parts of it suffered, and in 1884 there was widespread distress. The season was again bad in 1900 in some portions. No statistics are available of the relief given previous to 1866. The average number of persons relieved in that year was 1,741, while the maximum number relieved in any one month was 2,727 in October. In 1876 both monsoons failed and prices rose enormously. The average number of persons relieved daily during the twenty-two months from December, 1876, to September, 1878, was 140,025, of whom 32,596 were gratuitously relieved and the remainder employed on works. The maximum number relieved in any one month was 299,804, or as much as 31 per cent. of the total population. The mortality caused by starvation and the diseases incidental thereto will never be accurately known, but the Census of 1881 showed that the population had decreased since 1871 by 250,339, or 27 per cent. No other District in the Presidency exhibited so terrible a decline. During the famine of 1891–2, in which the *tāluk* of Cumbum suffered worst, the average daily number of persons relieved was 14,107. The last serious famine was that of 1896–7. The average number relieved daily was 52,736, exclusive of 12,788 persons on gratuitous relief. The maximum number of persons on relief works in any one month was 170,289 in July, 1897. In this famine the expenditure in Kurnool District alone was 21 lakhs.

District subdivi- For administrative purposes Kurnool is divided into four subdivisions, one of which is in charge of a member of the

sions and staff.

Indian Civil Service, while the others are under Deputy-Collectors recruited in India. The subdivisions are Nandyāl (the Civilian's charge), comprising the *tāluks* of Nandyāl, Sirvel, and Koilkuntla; Mārkāpur, comprising the Mārkāpur and Cumbum *tāluks*; Kurnool, comprising Rāmallakota and Pattikonda; and the head-quarters subdivision, which consists of the single *taluk* of Nandikotkūr. A *tahsīldār* is stationed at the head-quarters of each *tāluk*, and a stationary sub-magistrate in three of them: namely, Nandyāl, Rāmallakota, and Pattikonda. In addition to the usual District staff there are two District Forest officers, and a special Deputy-Collector in charge of the irrigation from the Kurnool-Cuddapah Canal.

Civil justice and crime.

There are three regular District Munsifs' courts, at Kurnool, Nandyāl, and Mārkāpur. Appeals from these, as well as those from the District Munsif of Gooty in Anantapur, lie to the District Judge of Kurnool. The Court of Sessions tries the sessions cases which arise within the District and in the Gooty and Tādpatri *tāluks* outside it, and hears appeals from the convictions passed by the first-class magistrates. Dacoities, robberies, housebreakings, and thefts fluctuate in numbers, as elsewhere, with the state of the season, but proportionately to the population are more than usually common. The District has indeed the reputation of being one of the most criminal in the Presidency. Murders are especially frequent, being usually due to private personal motives or disputes about land. These land disputes often lead to serious riots, and the Koilkuntla *tāluk* is notorious for such disturbances. The Donga (thief) Oddes are the most criminal class. Their profession may be said to be thieving and robbing, and they are very brutal in their treatment of their victims.

Land revenue administration.

As already stated, the District consists historically of two portions: namely, Kurnool proper, consisting of the Rāmallakota, Nandikotkūr, Nandyāl, and Sirvel *tāluks*, and the four transferred *tāluks* of Cumbum, Mārkāpur, Koilkuntla, and Pattikonda. The revenue history of these two tracts is distinct. The history of the transferred *tāluks* is identical with that of the Districts from which they were transferred. Little definite is known of the methods of assessment under pre-British rulers in them. The villages were rented out to *poligārs*, who paid a *peshkash*, or tribute, and sometimes rendered military service. This tract came into the possession of the British in 1800, when Major (afterwards Sir Thomas) Munro, the first administrator of the Ceded Districts, introduced a rough field survey and settled the lands on a quasi-*ryotwāri*

system. But his rates were fixed with reference to the high assessment levied under the Musalmān governments, and were excessive. Sir Thomas eventually himself recommended a reduction of 25 per cent. in the assessments on 'dry' and 'wet' lands and an additional 8 per cent. on garden lands, but his recommendations were not accepted. After his departure to England in 1807, the villages were rented out on a triennial lease, and again on a decennial lease from 1810. Many of the lessees fell heavily into arrears and the renting system was discontinued in 1821. Later, Munro, who had returned as Governor of Madras, was able to carry out his old recommendations. The *ryotwāri* system was reintroduced, with the reductions in the rates which he had proposed. Since then no sweeping changes have occurred, except the exemption from extra assessment of land irrigated from wells and tanks constructed at private expense, the assimilation of 'garden' rates to 'dry' rates, and the abolition of the tax on special products. After the formation of the District as it now stands in 1858, a survey and settlement on modern lines were made; and the new rates were introduced in Pattikonda in 1872, in Koilkuntla in 1874, and in Cumbum and Mārkāpur in 1877.

In the case of Kurnool proper, very little is known of the former revenue history. The *gudikattu*, the only old record of importance, contains in detail the boundaries of each village and the extent and descriptions of all the lands in it, but no figures of assessment. During the Hindu period, the village lease system appears to have been the ordinary mode of settlement, the headman distributing the land with reference to the means of the ryots, and the fields being roughly classed with reference to the nature of their soil. The same system was continued under Muhammadan rule, but the manner of assessment was arbitrary and the methods of collection iniquitous. The demand was increased or lowered at the caprice of the Nawāb. A curious instance of arbitrary increase is on record. A sum of Rs. 5,000 was added to the demand on the village of Nannūr because a horse belonging to the Nawāb died there. The result of these exactions was that the inhabitants fled and land was left waste. After the assumption of the territory by the British in 1839, a *ryotwāri* settlement was introduced in 1840. This was followed in 1841 by a rough field survey which took two years to complete; and in 1843 the Commissioner, Mr. Bayley, prepared an elaborate scheme of field-assessment. His successor urged a reversion to the renting system, but the Board negatived the proposal. The *ryotwāri* system

was continued, and the only general change in the assessment was the abolition of the tax on special products. The great rise in prices which had taken place since the assumption of the territory compensated in some measure for the heaviness and inequalities of the assessment, though temporary remissions were granted year after year. All these inequalities were eventually removed by a survey and settlement on modern principles. In 1858 a new survey was begun, and the settlement was introduced in 1865 and completed in 1868. The survey found an excess in the cultivated area of $3\frac{3}{4}$ per cent over that shown in the revenue accounts of the whole District, but the enhancement of revenue, consequent upon the settlement, was proportionately less. The average assessment on 'dry' land is now Rs. 1-4-11 per acre (maximum, Rs. 5; minimum, 4 annas), and on 'wet' land Rs. 5-14 (maximum, Rs. 10; minimum, Rs. 2-8).

The revenue from land and the total revenue in recent years are given below, in thousands of rupees :—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue .	17,96	19,63	22,87	21,18
Total revenue .	20,82	27,18	31,46	30,50

Local boards.

Outside the two municipalities of Kurnool and Nandyāl, local affairs are managed by the District board and the four *tāluk* boards of Rāmallakota, Nandikotkūr, Nandyāl, and Mārkāpur, the areas under which correspond with those of the four administrative subdivisions. The total expenditure of these boards in 1903-4 was 2 lakhs, nearly half of which was laid out on roads and a third on medical services and institutions. The chief source of their income is, as usual, the land cess. A portion of the cess is reserved for future expenditure on railways. In addition, the affairs of sixteen of the smaller towns are managed by Union *panchāyats* established under Madras Act V of 1884.

Police and jails.

The head of the police in the District is the Superintendent, who has an Assistant at Nandyāl. There are 81 police stations; and in 1904 the force numbered 932 head constables and constables, working under 19 inspectors, besides 806 rural police. There are 12 subsidiary jails which can collectively accommodate 808 prisoners.

Education.

As in the other Deccan Districts, education is very backward in Kurnool. It stands nineteenth among the twenty-two Dis-

tricts of the Presidency in the literacy of its population, of whom only 4·2 per cent. (7·9 males and 0·4 females) are able to read and write. Mārkāpur and Pattikonda are the least literate, and Nandyāl is the most advanced, among the *tāluks*. The total number of pupils under instruction in 1880–1 was 5,437; in 1890–1, 10,275; in 1900–1, 16,122; and in 1903–4, 18,290. On March 31, 1904, 656 institutions were classed as public, of which 5 were managed by the Educational department, 97 by local boards, and 6 by municipalities, while 292 were aided by public funds and 256 were unaided but conformed to the rules of the department. Of these 647 were primary, 7 were secondary, and 2 training schools. There were, in addition, 116 private schools, with 1,681 pupils. Two of these, with a strength of 97, were classed as advanced. More than 96 per cent. of the pupils under instruction were only in primary classes, and only 15 out of the 2,438 girls at school had proceeded beyond that stage. Of the male population of school-going age, 21 per cent. were in the primary stage, and of the female population of the same age 4 per cent., which is rather a high proportion for the Deccan. Among Musalmāns, the corresponding percentages were 38 and 5. The Kurnool Muhammadans are the most illiterate in the Presidency. There were 228 schools for Panchamas, or depressed castes, giving instruction to 900 pupils. A few schools have also been opened for the Chenchus on the Nallamalai hills. There are two high schools, one at Kurnool town and the other at Nandyāl. The total expenditure on education in 1903–4 was Rs. 92,500, of which Rs. 25,000 was derived from fees. Of the total, 78 per cent. was devoted to primary schools.

Hospitals and dispensaries. The District possesses 3 hospitals and 12 dispensaries, which contain accommodation for 60 in-patients. In 1903 the number of cases treated was 118,000, of whom 830 were in-patients, and 1,900 operations were performed. The expenditure amounted to Rs. 25,400, the greater part of which was met from Local and municipal funds.

Vaccination. Vaccination has of late been receiving considerable attention, and in 1903–4 the number of persons successfully treated by the Local fund and municipal vaccinators together was 33 per 1,000, compared with a Presidency average of 30. Vaccination is compulsory in the two municipalities, but in none of the sixteen Unions.

[For further particulars of the District, see the *Kurnool District Manual*, by Gopalkristnamah Chetty, 1886.]

Mārkāpur Subdivision.—Subdivision of Kurnool District, Madras, consisting of the MĀRKĀPUR and CUMBUM *tāluks*.

Mārkāpur Tāluk.—North-eastern *tāluk* of Kurnool District, Madras, lying between 15° 37′ and 16° 18′ N. and 78° 50′ and 79° 34′ E., with an area of 1,140 square miles. The population in 1901 was 94,293, compared with 99,971 in 1891; the density is only 83 persons per square mile. It contains 76 villages, 12 of which are 'whole *ināms*.' Most of these latter are uninhabited. The demand for land revenue and cesses amounted in 1903–4 to Rs. 1,13,000, which is lower than in any other *tāluk* in the District. This *tāluk* and Cumbum are situated to the east of the Nallamalais, which separate them from the rest of the District, and their physical aspects are very different from those of their neighbours. The greater part of Mārkāpur is hilly. Several low ranges intersect it; and down the valleys formed by these flow the chief rivers, namely, the Duvvaleru, the Ralla Vāgu, the Tīgaleru, and the Kandleru, which drain the *tāluk* and flow into the Gundlakamma river. The soil is mostly rocky and gravelly, about 89 per cent. being red earth of a poor description. There are great natural facilities for impounding rain-water in tanks; but owing to the sparseness of population and the consequent dearth of labour, 'wet' cultivation is not popular and the tank projects are unremunerative. The *tāluk* contains the largest number of wells in the District, and nearly two-thirds of its irrigated area is watered from these sources. The very large extent of 'reserved' forests (557 square miles) affords ample grazing-ground for cattle and sheep, for which Mārkāpur is noted. The cattle of the coast Districts of Nellore and Guntūr are driven to the Nallamalais to graze during the hot season. The climate in the western half of the *tāluk* bordering upon the Nallamalais is unhealthy, but that of the eastern half is comparatively salubrious. The annual rainfall averages 25 inches.

Cumbum Tāluk.—Easternmost *tāluk* of Kurnool District, Madras, lying between 15° 10′ and 15° 52′ N. and 78° 45′ and 79° 19′ E., with an area of 1,061 square miles. The population in 1901 amounted to 115,881, compared with 117,602 in 1891, the density being only 109 persons per square mile. The *tāluk* contains one town, CUMBUM (population, 6,502), formerly the head-quarters, and 101 villages, of which as many as 27 are 'whole *ināms*.' The demand for land revenue and cesses amounted in 1903-4 to Rs. 1,99,000. The greater part of the *tāluk* is hilly, being shut in between the Velikondas (a section of the Eastern Ghāts) on the east and the Nallama-

lais on the west. Several low hills intersect the middle; and down the valleys formed by these flow the chief rivers, the Gundlakamma, Jampaleru, and Sagileru, the first two of which drain the northern portion, while the third flows through the southern part and ultimately falls into the Penner in Cuddapah District. The scenery of these valleys is fine, especially around the Pullalacheruvu waterfall. The way in which the rivers often run in deep gorges between hills affords admirable facilities for the formation of tanks by throwing dams across them. The most noteworthy instance is the magnificent Cumbum tank, formed by an embankment built across the Gundlakamma river. The formation of the country is also favourable to the digging of wells. The prevailing soil is red and gravelly. The climate is generally unhealthy, and malarial fever is very prevalent in Cumbum town. The rainfall averages 25 inches. More than half the *tāluk* is covered with 'reserved' forests (599 square miles), which afford excellent pasture for cattle and sheep. It is poorly off for road communications, the western and northern portions being practically inaccessible during the rains.

Nandikotkūr.—Northern subdivision and *tāluk* of Kurnool District, Madras, lying between 15° 39′ and 16° 15′ N. and 78° 4′ and 79° 14′ E., with an area of 1,358 square miles. The population in 1901 was 104,167, compared with 88,560 in 1891; the density is only 77 persons per square mile, compared with the District average of 115. It contains 102 villages, 6 of which are *inām*. The demand for land revenue and cesses amounted in 1903–4 to Rs. 2,97,000. It is the largest *tāluk* in the District, but more than half of it is covered by the Nallamalais and other 'reserved' forests. The Tungabhadra for a few miles, and the Kistna throughout its course in the District, bound it on the west and north, separating it from the Nizām's Dominions. The only other river of importance is the Bavanāsi, which drains the eastern part and flows into the Kistna at Sangameswaram, a place of pilgrimage for Hindus. The KURNOOL-CUDDAPAH CANAL passes through it for 69 miles, irrigating 36 villages. The total extent watered in 1903–4 was 9,300 acres. Half of the arable area is black cotton soil, 37 per cent. black loam, and the remaining 13 per cent. red earth. The *tāluk* contains the largest forest area in the District (709 square miles), almost the whole of which lies on the Nallamalais. The annual rainfall is about 29 inches, a little above the District average. The climate is unhealthy, the people suffering very much from fever and enlarged spleen.

Kurnool Subdivision.—Subdivision of Kurnool District, Madras, consisting of the RĀMALLAKOTA and PATTIKONDA *tāluks*.

Rāmallakota (literally, 'diamond fort').—*Tāluk* of Kurnool District, Madras, lying between 15° 18′ and 15° 55′ N. and 77° 36′ and 78° 10′ E., with an area of 846 square miles. The population in 1901 was 142,855, compared with 124,971 in 1891. Musalmāns are more numerous than in any other *tāluk* of the District; half of them are residents of Kurnool town. The density is 169 persons per square mile, compared with the District average of 115. It contains one town, KURNOOL (a municipality with a population of 25,376, the head-quarters of the *tāluk* and District), and 106 villages (inclusive of 7 'whole *inams*'). The demand for land revenue and cesses amounted in 1903-4 to Rs. 2,66,000. On the north the Tungabhadra forms the boundary, separating it from the Nizām's Dominions. The only other river is the Hindri, which, with its tributaries the Dhone Vāgu and the Hukri, drains the whole *tāluk* and ultimately falls into the Tungabhadra at Kurnool. The KURNOOL-CUDDAPAH CANAL takes off from the Tungabhadra at Sunkesula in this *tāluk* and is led along the northern portion of it, irrigating about 3,300 acres. The annual rainfall is 28 inches, about three-fourths of which is received during the south-west monsoon. Most of the *tāluk* is covered with black cotton soil. It contains 65 square miles of 'reserved' forests, almost the whole of which is on the Erramalas.

Pattikonda Tāluk ('cotton-hill').—Westernmost *tāluk* of Kurnool District, Madras, lying between 15° 7′ and 15° 52′ N. and 77° 21′ and 78° 1′ E., with an area of 1,134 square miles. The population in 1901 was 143,033, compared with 138,703 in 1891. The density is 126 persons per square mile, compared with the District average of 115 and the Presidency average of 270. The *tāluk* was the worst sufferer in the District in the great famine of 1876-8, when it lost about 60 per cent. of its inhabitants. It contains 104 villages, including five 'whole *ināms*,' but no town. PATTIKONDA, PYĀPALLI, Kodumūr, and Maddikera, are places of some importance, the first being the head-quarters. The demand for land revenue and cesses amounted in 1903-4 to Rs. 3,20,000. The Tungabhadra forms the northern boundary, separating it from the Nizām's Dominions. The only other river is the Hindri, which rises near Maddikera and drains nearly two-thirds of it. Pattikonda was part of Bellary District till 1858. It was then

called Panchapālaiyam, or the 'land of the five *poligārs*.' Almost every village contains a ruined fort. The rainfall is 23 inches, about two-thirds of which is received during the south-west monsoon. The *tāluk* is almost entirely 'dry,' there being only 34,925 acres of 'wet' cultivation supplied by petty tanks and wells. The prevailing soil is black cotton soil, but the southern portion is gravelly and hilly. The *tāluk* contains 112 square miles of 'reserved' forests, almost the whole of which lies on the Erramalas in the southern and south-eastern portions.

Nandyāl Subdivision.—Subdivision of Kurnool District, Madras, consisting of the NANDYĀL, SIRVEL, and KOILKUNTLA *tāluks*.

Nandyāl Tāluk.—Central *tāluk* of Kurnool District, Madras, lying between 15° 21′ and 15° 42′ N. and 78° and 78° 47′ E., with an area of 854 square miles. The population in 1901 was 110,292, compared with 96,292 in 1891; the density was 129 persons per square mile, compared with an average of 115 in the District as a whole. Next to Rāmallakota, it possesses the largest Musalmān population. It has one town, NANDYĀL (a municipality with a population of 15,137 and the head-quarters), and 91 villages. The demand for land revenue and cesses amounted in 1903–4 to Rs. 2,72,000. It is shut in between two ranges of hills, the Nallamalais on the east and the Erramalas on the west, between which flows the Kunderu river. The KURNOOL-CUDDAPAH CANAL runs through the centre from north to south. Most of the country is black cotton soil, but in the villages at the foot of the hills the soil is red and gravelly. The rainfall at Nandyāl town is heavier than at any other station in the District (33 inches), but the average for the *tāluk* is only about 28 inches. The climate is unhealthy, malarial fever being prevalent for the greater part of the year. 'Reserved' forests cover 351 square miles, almost entirely on the Nallamalais and Erramalas.

Sirvel.—*Tāluk* of Kurnool District, Madras, lying between 14° 54′ and 15° 26′ N. and 78° 22′ and 78° 46′ E., with an area of 613 square miles. The population in 1901 was 73,387, compared with 65,168 in 1891, the density being 120 persons per square mile, compared with the District average of 115. The *tāluk* contains 86 villages. The demand for land revenue and cesses amounted in 1903–4 to Rs. 2,32,000. It is situated in the Kunderu Valley, and is bounded on the north by the Nandyāl *tāluk*, on the west by Koilkuntla, and on the east by the Nallamalais. The western half is composed of black cotton soil, and is commanded by the KURNOOL-CUDDAPAH CANAL,

which supplies 6,200 acres. The eastern half, adjoining the sandstone hills of the Nallamalais, has a red ferruginous soil. This portion is cut up by several streams into narrow valleys clothed with fine jungle, and presents a pleasant contrast to the other portion, which is dry and arid. 'Reserved' forests on the Nallamalais cover 202 square miles.

Koilkuntla.—Central *tāluk* of Kurnool District, Madras, lying between 14° 57′ and 15° 29′ N. and 77° 59′ and 78° 33′ E., with an area of 572 square miles. The population in 1901 was 88,147, compared with 86,544 in 1891. Koilkuntla is more thickly populated than any other *tāluk* in the District except Rāmallakota. It contains 85 villages, but no town. The demand for land revenue and cesses amounted in 1903-4, to Rs. 3,10,000. The 'dry' lands of the villages on both sides of the Kunderu river, which flows through the eastern half of the *tāluk*, are the richest in the District, consisting of fertile black cotton soil. The annual rainfall is 22 inches, but the western portion receives only 17 inches. The people are more prosperous and robust than their neighbours, and are regarded as the most factious and litigious in the District, land disputes often leading to riots accompanied with bloodshed. The *tāluk* is very badly provided with communications.

Ahobilam.—Village and temple in the Sirvel *tāluk* of Kurnool District, Madras, situated in 15° 8′ N. and 78° 45′ E., on the Nallamalais. Population (1901), 151. The temple is the most sacred Vaishnava shrine in the District, and has three parts: namely, Diguva (lower) Ahobilam temple at the foot of the hills, Yeguva (upper) Ahobilam about 4 miles higher up, and a small shrine on the summit. The first is the most interesting, as it contains beautiful reliefs of scenes from the Rāmāyana on its walls and on two great stone porches (*mantapams*) which stand in front of it, supported by pillars 8 feet in circumference, hewn out of the rock. One of these, the *kalyāna mantapam*, or 'wedding hall,' was pronounced by Mr. Fergusson to be 'a fine bold specimen of architecture, wanting the delicacy and elegance of the earlier examples but full of character and merit.' The annual festival takes place in the months of March and April. The temple and the connected *math* in Tiruvallūr in Chingleput District, though they possess endowments almost throughout the Presidency and even beyond it, are now in a neglected condition.

Cumbum Town.—Town in the *tāluk* of the same name in Kurnool District, Madras, situated in 15° 35′ N. and 79° 6′ E. Population (1901), 6,502. Formerly it was the head-quarters

of a Head Assistant Collector and *tahsīldār*, and a regiment was stationed here. Though built upon a sandstone rock and favourably situated for drainage, the town has a bad name for unhealthiness, which is mainly due to the use of bad drinking water. With the idea of improving the sanitation of the town, it was constituted a municipality in 1866; but eventually the municipality was abolished and the Government offices transferred elsewhere. It is now a Union under the Madras Local Boards Act V of 1884. It possesses a hospital and the chief market in the District east of the Nallamalais, which is visited by traders from Guntūr, Palnād, Ongole, &c. Brightly coloured carpets of fast dyes, possessing a local reputation, are manufactured here on a small scale. By far the most noteworthy feature of the town is, however, the magnificent tank formed by damming a gorge through which flows the Gundlakamma river. The height of the dam is 57 feet. The traditional belief is that the tank was built by the sage Jamadagni; it is also said to have been constructed, or considerably improved, by the Gajapatis of Kalinga in the fifteenth century, and to have been restored later by the Vijayanagar princess Varadarājamma. It has a drainage area of 430 square miles and a capacity of 3,696 million cubic feet. The area irrigated by it in 1903–4 was 5,500 acres of first crop and 4,800 acres of second crop, or 10,300 acres in all. The revenue derived was Rs. 42,300.

Dhone.—Village in the Rāmallakota *tāluk* of Kurnool District, Madras, situated in 15° 24′ N. and 77° 53′ E. Population (1901), 3,508. The place is important as being the railway station for Kurnool town, which is 33 miles north of it by road. It is also the head-quarters of a deputy-*tahsīldār*. Though picturesquely situated in the midst of hills, Dhone has a bad name for unhealthiness, due probably to its indifferent water-supply, which is derived from a spring. There is a Local fund dispensary and a travellers' bungalow, and the hills close by are known for their abundance of antelope.

Kurnool Town.—Head-quarters of the District and subdivision of the same name, Madras, situated in 15° 50′ N. and 78° 4′ E., on a low rocky spit of ground at the confluence of the two rivers Tungabhadra and Hindri, 900 feet above sea-level, 33 miles from the nearest railway station (Kurnool Road or Dhone, on the Southern Mahratta Railway), and 350 miles from Madras city. The population in 1901 was 25,376, nearly half being Muhammadans, an unusually high proportion. Christians numbered 369.

The fort is said to have been built by Achyuta Rāya, the successor of Krishna Deva Rāya, the greatest of the Vijayanagar kings. The history of the place is referred to in the account of the District of which it is the capital. The fort has been completely dismantled, except one bastion preserved on antiquarian grounds, which is at present used by the police as a powder-magazine. The tomb of Abdul Wahāb, the first Muhammadan governor, on the bank of the Hindri, which was built in A.D. 1618, is the only other antiquity in the place which deserves mention.

Kurnool is the head-quarters of the Collector and of the usual District staff. Being situated in a hollow, the place is very sultry in the hot season. Formerly it was regarded as one of the most unhealthy stations in the Presidency, but since the introduction of a water-supply its salubrity has considerably improved.

Kurnool was constituted a municipality in 1866. The receipts and expenditure during the ten years ending 1900–1, excluding loans from Government, averaged Rs. 42,000. In 1903–4 they amounted to Rs. 57,000 and 51,500 respectively. Most of the income is derived from the taxes on houses and land, tolls, and the water rate. Formerly the water-supply of the town was brought by means of open channels from the irrigation canal which flows close by. This water was greatly polluted during its passage, and water-works were in consequence constructed in 1897 at a cost of 2·6 lakhs, three-fourths of which was contributed by Government. Water is now lifted by two steam pumps from the canal into two settling tanks situated on a high level, and from there passed into four filter beds, from which it is taken into two service reservoirs carefully preserved from contamination and situated on a level which commands the whole town. The municipality maintains a hospital, with beds for twenty-four in-patients.

Kurnool shares with Nandyāl the main part of the commerce of the District, and is the centre of the grain trade of the northern half. There are two steam cotton-presses belonging to native merchants. The chief manufactures are carpets and cotton cloths of coarse kinds. A small tannery has been opened recently by a Musalmān. The municipal high school had 183 boys on its rolls in 1903–4. There is also a lower secondary school with 123 boys, under the management of the American Baptist Mission, which has its head-quarters here.

Nandyāl Town.—Head-quarters of the subdivision and *tāluk* of the same name in Kurnool District, Madras, situated

in 15° 30′ N. and 78° 29′ E., on the right bank of the Kunderu, on the trunk road from Kurnool to Chittoor, 45 miles from Kurnool and about 360 miles from Madras city. Population (1901), 15,137. It is the head-quarters of the divisional officer and of the Assistant Superintendent of police. It was constituted a municipality in October, 1899. The receipts and expenditure in 1903–4 amounted to Rs. 23,500 and Rs. 22,000 respectively. Most of the former is derived from the taxes on land and houses and from tolls. The municipal hospital contains beds for eighteen in-patients. The town is situated below a large irrigation tank, and being surrounded by 'wet' cultivation on all sides has the reputation of being the most unhealthy station in an unhealthy District. After the opening of the Southern Mahratta Railway, Nandyāl began to rise fast into commercial importance. It is now the centre of the grain and cotton trade of the southern half of the District. It contains two steam cotton-presses owned by Europeans, which employ 119 persons in the season. It is also noted for its lacquer ware. The chief educational institution is the high school managed by the Society for the Propagation of the Gospel.

Pattikonda Village.—Head-quarters of the *tāluk* of the same name in Kurnool District, Madras, situated in 15° 24′ N. and 77° 31′ E. The population in 1901 was 4,373, and it is a Union under the Madras Local Boards Act V of 1884. It consists of two portions: the old *pettah*, and the new Munro's *pettah* which is named after Sir Thomas Munro, Governor of Madras, who died here of cholera on July 6, 1827, when on tour. To his memory Government constructed a fine stone-faced reservoir, built a *mantapam*, or porch, close by, and planted round it a grove of tamarind trees. The grove and well are maintained by the Rāmallakota *tāluk* board. A weekly market is held in front of the grove.

Pyāpalli.—Town in the Pattikonda *tāluk* of Kurnool District, Madras, situated in 15° 14′ N. and 77° 44′ E., at the foot of a granite hill, on the trunk road from Hyderābād to Gooty and Bangalore. This is the highest town in the District, being about 1,750 feet above sea-level, and is probably the healthiest station. Population (1901), 3,666. It is the head-quarters of a deputy-*tahsīldār*. There is a good travellers' bungalow situated in a fine tope planted by Mr. Robertson, a former Collector. The representatives of the ancient *poligārs* who built the town and fort still reside here, and draw pensions from Government.

Srīsailam.—Famous temple in the Nandikotkūr *tāluk* of Kurnool District, Madras, situated in 16° 5′ N. and 78° 53′ E. It lies in the midst of malarious jungles and rugged hills on the northernmost plateau of the Nallamalais, overlooking a deep gorge through which flows the Kistna river. The ruined wells and tanks and the remains of walls and ancient buildings which lie around show that the neighbouring country was once prosperous. The place appears to have been inhabited till the fifteenth century, and was deserted after the Musalmān conquest. There are three routes to the temple: that through Atmakūr and Nagaluti in the Nandikotkūr *tāluk*, which is the one most frequently used; that by Bommalapuram in the Mārkāpur *tāluk*; and that across Nīlganga ferry over the Kistna river, which is followed by pilgrims from Hyderābād territory. The temple is 660 feet long by 510 feet broad. The walls are elaborately sculptured with scenes from the Rāmāyana and Mahābhārata. In the centre stands the shrine of Mallikārjuna, the name by which Siva is worshipped here. The temple is now under the management of Srī Sankarāchārya, priest of the Pushpagiri *math*, to whom it was handed over by Government about 1841, when the authorities ceased to manage religious institutions. The priest has leased out the revenues and takes no interest in the temple; and the result is that the buildings are in bad order and falling to pieces, and the lessees levy all sorts of contributions from the numerous pilgrims who attend the grand Sivarātri festival in the months of February and March every year. The temple, which was richly endowed in former days, is now very poor, as it was plundered by a band of robbers in the eighteenth century, and the *ināms* attached to it were resumed by the Musalmāns when they obtained possession of the District.

BELLARY DISTRICT

Bellary District (*Ballāri*).—The westernmost of the four CEDED DISTRICTS in the Madras Presidency, lying between 14° 28′ and 15° 58′ N. and 75° 40′ and 77° 38′ E., with an area of 5,714 square miles. It is bounded on the west and north by the river Tungabhadra, which divides it from the Bombay Presidency and the Nizām's Dominions; on the east by Kurnool and Anantapur Districts; and on the south by the State of Mysore.

Boundaries, configuration, and hill and river systems.

Bellary lies on the northern slope of the Deccan plateau, and the trend of the country is towards the north-east, ranging from an elevation of over 2,000 feet above the sea on the south to about 1,000 feet in the north-east corner. The District is divided east and west by the range of hills in the midst of which lies the Native State of SANDŪR. To the west the surface of the country is broken by various ranges of small hills, especially in the Kūdligi and Harpanahalli *tāluks*, where the land rises to join the Mysore plateau, and is often well wooded and generally picturesque. To the east lies a vast expanse of level, almost treeless, dreary, black cotton soil, forming two-thirds of the District, which is broken only by two small groups of hills in the extreme north and south, and by those granite masses, springing abruptly from the surrounding country, which form such a characteristic feature of the Deccan. The central rock of these is usually surrounded by loose boulders, sometimes of enormous size, split off by the action of the weather, and of every variety of colouring from warm reds and browns to pale slaty greys. The principal hills outside of Sandūr are those round Kampli, Adoni, and Rāyadrug, and the Copper Mountain range. The Kampli group is an irregular semicircle of barren hills lying to the north of Sandūr on the banks of the Tungabhadra, and is mainly interesting as forming the site and natural fortification of the ancient city of VIJAYANAGAR. The Copper Mountain, so called from mines no longer worked, is a small range 7 miles west of Bellary town, running parallel to the Sandūr hills and rising to a height of 3,285 feet. The hills at Adoni and Rāyadrug, on which stand the ancient forts of those towns, run up to 2,000 and 2,727 feet respectively. With the

exception of the Sandūr range, there is very little vegetation on any of these elevations, and no real forest.

The river system of the District consists of the Tungabhadra and its tributaries. The Tungabhadra, formed by the junction of the Tunga and Bhadra, both rising near the south-western frontier of Mysore, skirts the District on its western and northern borders for about 195 miles and eventually falls into the Kistna near Kurnool. During the hot season its stream is low and easily fordable in many places; but from June to October, after the south-west monsoon, the waters rise from 15 to 25 feet and the river in several places exceeds half a mile in breadth. When not fordable, it is crossed (except in heavy floods) by means of coracles made of bamboo frames covered with hides. At Vijayanagar the river passes through a fine granite gorge, and below this its course is studded with rocks which render navigation impossible in the dry season. Its waters abound with crocodiles, and considerable quantities of fish are netted. It is crossed by the Southern Mahratta and Madras Railways at Hosūru and Rāmpuram respectively. The more notable places upon its banks are Vijayanagar, Kampli, and Mailār. The Hagari or Vedāvati, the main tributary of the Tungabhadra in the District, rises in Mysore, and after flowing through the Rāyadrug and Bellary *tāluks* falls into the Tungabhadra at Hālekota. It is a very broad and shallow stream, with a total length of about 280 miles, of which 125 are in this District, and rarely has any flow of water for more than five months in the year. The sand from its bed, carried by the prevailing south-westerly winds, is perpetually encroaching on the land along its eastern banks. At Moka, 12 miles from Bellary, the sand-beds are nearly 2 miles broad. The channel of the river varies from a quarter to three-quarters of a mile in width, and even at flood-time the water rarely exceeds 4 feet in depth. The Southern Mahratta Railway bridges it at Paramādevanahalli. The Chikka Hagari is a small stream, also rising in Mysore, which, after crossing the western *tāluks*, falls into the Tungabhadra at Kittanūru. Though it comes down occasionally in heavy floods during the monsoons, it is perfectly dry for many months in the year. The irrigation from these rivers is referred to below.

Geology.

Five-sixths of Bellary is covered with Archaean rocks, granitoid and gneissic, and the little barren hills, characteristic of the Deccan, are formed of these. Superimposed upon them are four well-marked bands of the younger Dhārwār series, which run right across the District from north-west to south-east. The

chief of these is the line forming the Sandūr hills, which is remarkable for the immense quantities of rich hematite it contains. There is also an old gold-mine in it. Quartz tops several of the hills, and trap dykes of great length and width are further characteristics of the geology of the District.

Botany.

In the drier eastern *tāluks* the flora consists largely of such drought-resisting plants as *Euphorbias*, acacias, and *Asclepiads*, and the *Acacia arabica* and the *margosa* (*Melia Azadirachta*) are the characteristic trees. In the west the growth is more luxuriant and date-palms flourish in the damper hollows. Over all the waste lands grow the yellow-flowered *Cassia auriculata* and the *Dodonaea*. The chief trees in such forests as the District possesses are referred to under that head below.

Fauna.

Leopards are fairly numerous in the hills of Sandūr and in the Kūdligi and Harpanahalli *tāluks*, where their depredations on cattle are considerable. Bears are found in the western hills, and hyenas and wolves in Harpanahalli. Wild hog infest the Kampli Hills and parts of the Kūdligi *tāluk*, and do much damage to crops. There are also a considerable number of *chinkāra* (Bennett's gazelle) and antelope in the western *tāluks* and in Adoni, but they are not often to be seen in the flatter eastern *tāluks*. Of the larger game birds, peafowl and bustard are found in Hadagalli and Harpanahalli. The former are especially common along the banks of the Tungabhadra.

Climate and temperature.

The climate of the District is exceedingly dry throughout and correspondingly healthy. The only parts which are at all feverish are the Kūdligi *tāluk*, where there are numerous hills and tanks (artificial irrigation reservoirs), and the irrigated cultivation along the Tungabhadra. The western *tāluks*, especially Harpanahalli, where the temperature approximates to that of the Mysore plateau, are considerably cooler than the eastern. The average mean of the year at Bellary town is 82°, but this is considerably exceeded at Adoni. RĀMANDRUG, the little military sanitarium on the Sandūr hills, has an average temperature about 12° cooler than Bellary.

Rainfall.

Lying almost in the middle of the Peninsula, the District gets rain from both monsoons, but only after their supply is almost exhausted. Though everywhere very light, the fall varies considerably in different parts. It is heaviest at Rāmandrug (39 inches), and the Adoni and Hospet *tāluks* (27 inches) receive a good deal more than the western *tāluks* or Bellary and Rāyadrug. In these last two the average fall is only 19 inches, and they are one of the driest tracts in the Presidency. Rather more than half the year's supply is received during

the south-west monsoon. The rainfall is not only small but also very uncertain, and Bellary has suffered constantly from prolonged droughts and frequent deficiencies in the monsoons. Except famine, it has, however, been peculiarly free of late years from serious natural calamities. In 1804, during the south-west monsoon, there was a series of terrific storms during which hundreds of tanks were breached; and again in 1851 a cyclone swept through the District, washing away several villages, and destroying many roads and irrigation works. The Hagari rose suddenly during this storm and overwhelmed the town of Gūliam on its right bank, drowning many of the inhabitants.

History. The country round Vijayanagar is the traditional scene of some of the most notable events in the Rāmāyana. Inscriptions, show that Bellary was intimately connected with the fortunes of the early dynasties of the Western Chālukyas and their successors the Hoysala Ballālas. But little definite is known of the history of the District before the fourteenth century. In 1336 was founded on the banks of the Tungabhadra, near the present hamlet of Hampi, the famous town of VIJAYANAGAR, 'the city of victory.' The town rapidly became the nucleus of a kingdom, and the kingdom grew into an empire. For two centuries its rulers succeeded in uniting the whole of Southern India and holding in check the Musalmāns who were advancing from the north. In 1565, at the battle of Tālikotā, Vijayanagar was utterly overthrown by a combination of the Sultāns of the Deccan. The Musalmān dominion which followed was weak, and the country was split up into small principalities under chieftains known to history as *poligārs*. Locally, their powers were absolute and they used them mercilessly, so that the common people were everywhere ground into the dust. Aurangzeb annexed the dominions of the Musalmān kings; the Marāthās, and after them Haidar Alī of Mysore, followed and seized much of the District; the Nizām's rule succeeded; but through all these changes the *poligārs* continued to hold all local authority, and it was with them that the British had to deal when the District was ceded to the Company. Bellary had fallen into the power of Haidar Alī of Mysore and his son Tipū in the latter part of the eighteenth century. At the partition of Tipū's territory in 1792, part of the District fell to the Nizām. At the further partition which occurred after Tipū's defeat and death at Seringapatam in 1799, the Nizām obtained the rest of it; but he ceded both portions and other adjoining territory to the British in 1800. Major (afterwards Sir Thomas) Munro was the first Collector of the country so obtained, called the Ceded Dis-

tricts, which included the present Districts of Cuddapah, Bellary, Anantapur, and much of Kurnool; and his first care was to reduce to order the eighty *poligārs* whom he found within it. Some of these were pensioned and the estates of the remainder were resumed. In 1808 the tract was split into two Districts, Cuddapah and Bellary. The latter then included the present District of Anantapur. This was formed into a separate Collectorate in 1882, and Bellary District as it now stands has thus been a separate Collectorate for only twenty-four years.

Archaeology. More palaeolithic and neolithic settlements and implements have been found in Bellary than in any other District in Madras, and some of them are of great interest. Round Gollapalle in the Rāyadrug *tāluk* are hundreds of kistvaens of the usual pattern, some of which have been found to contain pottery, bones, &c. Jain temples are numerous, and in the western *tāluks* are a number of little Chālukyan shrines, covered with most delicate carving in steatite. These are described and illustrated in Mr. Rea's *Chālukyan Architecture*. At Adoni, Bellary, Rāyadrug, and elsewhere are ancient hill fortresses of much interest. But the most important antiquities in the District are the extensive and impressive ruins, near Hampi, of the great capital of the Vijayanagar empire.

The people. The District contains 10 towns and 929 villages. It is divided into 8 *tāluks*, the head-quarters of which are at the places from which each is named. Statistics of population according to the Census of 1901 are given below:—

Tāluk.	Area in square miles.	Number of: Towns.	Number of: Villages.	Population in 1901.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Adoni . . .	839	3	191	178,784	213	+ 11·2	6,884
Alūr . . .	686	...	106	98,568	144	+ 11·9	3,666
Bellary . . .	962	2	156	193,401	201	+ 7·2	11,897
Rāyadrug . .	628	1	71	82,789	132	+ 5·3	2,555
Hospet . . .	540	2	121	101,947	189	+ 10·2	4,939
Hadagalli . . .	585	...	87	92,094	157	− 11·5	4,193
Kūdligi . .	863	1	116	103,985	120	+ 10·3	4,937
Harpanahalli .	611	1	81	95,646	157	+ 16·3	3,981
District total	5,714	10	929	947,214	166	+ 7·5	43,052

The principal towns are the two municipalities of BELLARY, the District head-quarters, and ADONI; and the eight Unions of HOSPET, YEMMIGANŪR, RĀYADRUG, KAMPLI, HARPANAHALLI, KOSIGI, KOTTŪRU, and SIRUGUPPA. The population of the

District in 1871 was 911,755; in 1881, 726,275; in 1891, 880,950; and in 1901, 947,214. Hindus form 89 per cent. of the total and Musalmāns 10 per cent. The famine of 1876-8 was very severely felt, and it was not until over twenty-years afterwards that the population recovered the loss it then suffered. The percentage of increase during the last decade was a little above the average for the Province, in spite of considerable emigration to Mysore. The apparent decline in the Hadagalli *tāluk* is due to the total for 1891 having been unduly inflated by the presence of numerous pilgrims at the great festival at Mailār. Bellary is the least sparsely peopled District in the Deccan, the density being as much as 100 per square mile below the Presidency average. Kanarese is the prevailing language in the west and Telugu in the east. On the whole, 57 per cent. of the people speak the former and 30 per cent. the latter tongue.

Their castes and occupations.

The majority of the Hindus are Telugus or Kanarese. Of the Telugus, the Boyas (*shikāris* and cultivators, and formerly the material from which many of the troops of the *poligārs* and of Haidar were raised) are the strongest community, numbering 121,000, or more than in any other District. Then come the Mādiga leather-workers (77,000), followed by the Kāpus, the great agriculturist class (48,000). Among Kanarese castes, the Kurubas (shepherds) are the most numerous (97,000). The Lingāyats, a sect of Hindus who worship Siva and his symbol the *lingam*, and disregard the sacerdotal authority of Brāhmans, number 96,000 (which is nearly two-thirds of the total of the sect within the Presidency). The castes which speak neither Telugu nor Kanarese are divided almost equally between Marāthās, Tamils, and Lambādis, the last of whom, a wandering gipsy community, are more numerous in Bellary than in any other District. The majority of the Musalmāns are Shaikhs, but there are nearly 10,000 of the mixed race of Dūdekulas. By occupation nearly three-fourths of the total population are agriculturists or shepherds. Weavers are, however, more than usually numerous.

Christian missions.

The number of Christians in the District is 5,066, or about five in every 1,000 of the population. About 3,700 of them are natives, and nearly three-quarters are Roman Catholics. The first priest to visit this part of the country was a Father Joachim D'Souza, who came to Bellary from Goa in 1775 and died in 1829. The natives called him Adikanāda, and his memory is still held in veneration. The Bellary mission continued under the charge of the Goa priests until 1837. In

that year a chaplain was appointed by Government for the Roman Catholic troops at Bellary, and under the double jurisdiction which ensued many more churches and chapels were erected than the number of Catholics required. The Goa jurisdiction ceased with the establishment of the regular hierarchy by an apostolic letter of Pope Leo XIII in 1886. The mission is at present under the direction of the Roman Catholic chaplain, assisted by four Fathers from the Missionary Society of St. Joseph, London. The only Protestant mission in the District is that of the London Missionary Society. It was established in 1810 and has a staff of five missionaries, one of whom is a lady.

General agricultural conditions.

The soils of the District are classed as red, mixed, and black; the two former preponderate in the hilly western *tāluks*, and the latter in the level tracts of Bellary, Alūr, Adoni, and Rāyadrug. The red ferruginous soils are derived from the decomposition of the granitic rocks, and are loams of a more or less sandy character. They are much less fertile than the black cotton soil of the eastern *tāluks*. The average depth of this latter is about 4 feet, but a much greater thickness is found in certain localities. In Alūr it is of particular richness, and the rates of assessment there are the highest in the District. A disadvantage, however, is that, owing perhaps to the underlying beds of soft calcareous limestone, trees will not flourish in it and the water in the wells is frequently brackish.

The seasons of cultivation on the red and mixed soils differ altogether from those on the black. On the former, 'dry' crops are sown at the beginning of the south-west monsoon in June; but the latter is held to require the thorough soaking only obtainable from the later rains of that monsoon, and *korra* (*Setaria italica*) and cotton are sown on it in August and other crops in November. On 'wet' lands rice is sown in May and January and sugar-cane in March. Like the other Deccan Districts, Bellary possesses several ingenious agricultural implements which are almost unknown elsewhere, among them the bamboo seed-drill, the bullock-hoe, and the big iron plough used for eradicating deep-rooted grasses.

Chief agricultural statistics and principal crops.

There are no *zamīndāris* in the District, but more than a fifth of the total area is *inām* land. Of the total extent of 5,714 square miles, the village accounts give particulars for 5,697. Details by *tāluks* for 1903-4 are given in the table on the next page, areas being in square miles.

The two principal food-grains are *cholam* (*Sorghum vulgare*) and the *korra* already mentioned. The area under the former

in 1903–4 amounted to nearly one-third of the total area cropped. Both are largely grown in all *tāluks*, but are especially favourite crops in Bellary, Alūr, and Adoni in the east. Pulses are grown to a considerable extent; but, except in Rāyadrug, they are usually mixed with the cereals on no fixed principles, and the exact area is not ascertainable. Irrigation being rare, the rice crop is small, occupying only 63 square miles in 1903–4. The chief industrial crop is cotton, grown mainly on the black cotton soil in the four eastern *tāluks* and in Hadagalli. In the red soils of Kūdligi, Harpanahalli, and Hadagalli, large quantities of castor and other oilseeds are raised. Sugar-cane is grown mainly in Hospet, where it occupies 5 per cent. of the cultivated area. It has not yet developed the disease which has appeared in other Districts, and the area under it is steadily increasing.

Tāluk.	Area shown in accounts.	Forests.	Cultivable waste.	Cultivated.	Irrigated.
Adoni . . .	830	59	34	666	7
Alūr . . .	686	25	13	613	1
Bellary . . .	962	29	38	799	8
Rāyadrug . .	629	40	81	440	22
Hospet . .	530	131	34	253	27
Hadagalli . .	587	46	56	432	4
Kūdligi . .	862	209	130	382	16
Harpanahalli .	611	86	43	375	5
District total	5,697	625	429	3,960	90

Improvements in agricultural practice. Except in Kūdligi, the proportion of arable land to the total extent is high, but a considerable amount is still unoccupied, especially in the western *tāluks*. The poorer soils there are frequently cultivated for a single year, and then abandoned and left to recuperate. The area occupied fluctuates considerably owing to the numerous bad seasons which have visited the District, but there has been a net increase during the last thirty years of rather more than 10 per cent. Except for the general introduction of iron ploughs during recent years, little has been done in the way of agricultural improvement. Attempts to introduce foreign varieties of cotton have been unsuccessful; and wells, owing largely to the great expense of constructing them in both the loose cotton soil and the rocky red land, are not popular.

About 6½ lakhs was advanced during the sixteen years following 1888 under the Land Improvement Loans Act. The

greater part of this has been spent upon the reclamation of land overrun with deep-rooted grass and prickly-pear (*Opuntia*). Considerable sums have also been borrowed under the Agriculturists' Loans Act for the relief of distress, purchase of seed, and similar purposes.

Cattle, sheep, and goats.

The indigenous breed of cattle is small and weak. The best draught animals in use in the eastern *tāluks* are brought from Nellore by travelling drovers. In the west, large numbers of cattle are imported from Mysore and sold at the two great annual fairs on the Tungabhadra at Mailār and Ruruvatti. A fine breed of pack-buffaloes, bred in the Nizām's Dominions, is used in Kampli and the neighbouring villages. Ponies are not raised in the District in any number. There are two varieties of sheep, the black or long-fleeced and the white and reddish-brown long-legged variety. The latter are chiefly kept for their manure and flesh; but the former give a fair wool, which is largely used in Rāyadrug, Kūdligi, and Harpanahalli for the manufacture of the cheap black or black and white blankets which serve the ryot as bed, umbrella, portmanteau, or great-coat, as need may require. Goats are reared in large numbers for both milk and manure.

Cattle for the plough and milch kine are fed mainly on *cholam* stalks and cotton-seed. Sheep and the younger cattle are grazed in forest Reserves and on waste lands. Goats, owing to their destructive habits, are confined to waste lands and roadsides.

Irrigation.

The area irrigated in 1903-4 was 90 square miles, or little more than 2 per cent. of the total area under cultivation. This was watered in almost equal proportions from Government channels, from tanks, and from wells. Practically the whole of the irrigation from channels is that fed by the Tungabhadra canals. This river is perennial, and provides the only unfailing source of supply in the District. There are ten dams across it, all of which were originally constructed by the Vijayanagar kings, though English engineers have done much to improve and regulate the supply from them. Near one of them is an inscription recording its construction in S. 1443 (A.D. 1521) by the famous king Krishna Deva Rāya of Vijayanagar. The area irrigated by them collectively in 1903-4 was about 17,000 acres, of which 12,500 were in the Hospet *tāluk*. The Tungabhadra runs in a deep bed and the ground slopes down towards it, so that it is impossible for them to command much land. Channels dug annually in the beds of the Hagari and Chinna Hagari irrigate small areas in the Rāyadrug and Kūdligi *tāluks*. The great TUNGABHADRA irrigation project, designed to benefit

not only Bellary but several other Districts also, is described in the separate account of that river.

The tanks of the District are usually small, irrigating on an average less than 50 acres apiece. The two largest are the Kanekallu tank in Rāyadrug and the Daroji tank in Hospet. The former, which is supplied by a channel from the Hagari, waters 2,300 acres. The Daroji tank, which is said to have been constructed by Tipū Sultān, has an embankment 2½ miles in length and in some places 60 feet in height. It irrigates about 1,800 acres. Irrigation from wells is commonest in Kūdligi and Rāyadrug. There is room for more of these sources in Harpanahalli and Hadagalli, but in the cotton soil *tāluks* irrigation is not popular.

Forests. Though there is a considerable area in each *tāluk* of so-called forest, the Reserves mainly consist of patches of more or less scanty scrub jungle, in which it is hoped that careful preservation extended over a number of years may induce a growth of larger timber. Tradition says that there were originally extensive forests in the District; but none has existed within living memory, and at present the resources of the Reserves are severely taxed to produce even the firewood required locally. Timber and bamboos are largely imported, chiefly from the Nallamalais. The Kūdligi Reserves contain the largest growth, including a small amount of teak. *Anogeissus latifolia*, acacias, *Prosopis*, *Carissa*, and *Terminalia tomentosa* are the commonest forest trees. The growth on the hills in the Sandūr State is finer than anywhere in the District proper; and 40,000 acres of this range are leased from the Rājā at an annual rental of Rs. 10,000 and worked as part of the Bellary forests. The characteristic tree here is *Hardwickia binata*, one of the hardest and heaviest woods in India. A small amount of sandal-wood and teak is also cut, and it is hoped that it may eventually be possible to supply the Southern Mahratta Railway with fuel from these hills. Like other forest areas in the District they suffer severely from fires, owing to the extreme dryness of the climate.

Minerals. Very little has been done to exploit the mineral resources of the District, though they are considerable. Iron used until recently to be smelted in small quantities in Hospet and Kūdligi to make boilers for the local manufacture of sugar, but it has now been ousted by the cheaper English product. With greater facilities for obtaining fuel this industry might be enormously extended, as the supply of hematite is unlimited and the Sandūr hills contain what is possibly the richest ore

in the whole of India. Manganese deposits also occur on this range, and several beds of mineral pigments. A small quantity of gold has been won in the past by washing in some of the jungle streams in Harpanahalli, but this part of the District has been prospected under European supervision without result. Among building materials may be mentioned several beautiful porphyries, eminently suitable for decorative work, and the splendid varieties of ribbon jasper which occur in the Sandūr hills. Neither of these has ever been worked.

Arts and manufactures. Cotton- and silk-weaving are important in all parts of the District, and the proportion of the population engaged in the former industry is unusually large. The cotton stuffs woven are of the ordinary coarse variety; but at the centres of the silk-weaving industry in Kampli, Hampāsāgaram, Rāyadrug, and elsewhere handsome fabrics of various patterns are manufactured, which are exported to the Nizām's Dominions and Bombay. Both the cotton and silk are largely dyed locally. Coloured cotton rugs, manufactured at Adoni, mainly by Muhammadans, have a considerable sale all over the Presidency and also in other parts of India. Woollen blankets are woven in a large number of villages in the Kūdligi and Harpanahalli *tāluks*, chiefly by Kurubas, the wool being obtained locally. They are exported in large numbers to other Districts. A small amount of ordinary brass ware is made at Hospet and one or two other villages; and a family or two in the Kūdligi and Harpanahalli *tāluks* make from soapstone small vessels and little images of Basava, the bull in whose form the founder of the Lingāyat sect is worshipped.

There are seven steam cotton-presses or ginning-factories in the District, two at Bellary and five at Adoni. The total number of hands employed in 1904 was 660. A spinning mill established at Bellary in 1894, which is fitted with machinery of the latest pattern, employed an average of 520 hands in 1903–4. The number of spindles was 17,800, producing 650 tons of yarn valued at 4½ lakhs. Several tanneries are at work, but the only one of any size is at Rāyadrug, where forty-five hands were employed in 1904. About 45,000 skins were dealt with, producing leather valued at Rs. 40,000. A small distillery at Bellary produced 32,000 gallons of spirit valued at Rs. 37,000.

Commerce. As is natural from its geographical position, the chief trade of Bellary is with Bombay, the Nizām's Dominions, and Mysore, rather than with the rest of the Madras Presidency. From Bombay are imported rice, turmeric, chillies, metal and metal work (especially brass ware from Hubli); and in return cereals,

silk fabrics, cotton carpets, blankets, and jaggery (coarse sugar) are exported. Cattle, rice, timber, and coco-nut oil are received from Mysore, blankets, oilseeds, and cotton stuffs being exported thither. To the Nizām's Dominions Bellary sends *cholam*, jaggery, cotton and silk fabrics, and receives in return chiefly raw cotton. Trade with other parts of the Presidency is principally in manufactured goods, the raw products of the District being sent in exchange. About three-quarters of the total output of cotton is sent to Madras city.

The chief centres of general trade are Bellary, Adoni, and Hospet, the large trade in cotton being confined to the first two of these. Hospet serves as an entrepôt for the exchange of the products of the western *tāluks* with the Dhārwār District, of Bombay and the Nizām's Dominions, while a great deal of business with both Mysore and Bombay is transacted at the annual fairs at Mailār and Kuruvatti. From the southern parts of the western *tāluks* large quantities of merchandise are taken to Dāvangere in the Chitaldroog District of Mysore. The ordinary trade is mostly in the hands of the Chetti caste, but a colony of Mārwāris at Bellary controls the export grain trade there. Besides the fairs above mentioned, there are numerous local markets for internal trade. The fees levied at them by the local boards yield about Rs. 7,000 annually.

Railways and roads. The north-west line of the Madras Railway (standard gauge) traverses the two eastern *tāluks*, passing through the town of Adoni and leaving the District by a large girder-bridge over the Tungabhadra at Rāmpuram. This section was opened in 1870. At Guntakal, just beyond the borders of Bellary, there is a junction between the Madras and Southern Mahratta Railways. The metre-gauge line of the latter crosses the District in a westerly direction, connecting Guntakal with Bellary and Bellary with Hospet and with Dhārwār in Bombay. Through Guntakal, Bellary is also connected southwards with Anantapur and Bangalore, and to the east with the Districts of Kurnool, Cuddapah, Guntūr, and Kistna. The line from Guntakal to Bellary was finished in 1871, and was originally part of the Madras Railway and on the standard gauge. It was converted to the metre gauge in 1887. Two metre-gauge famine protective lines from Bellary to Rāyadrug and from Hospet to Kottūru, 33 and 38 miles in length respectively, have recently been constructed.

Bellary has 271 miles of metalled and 582 miles of unmetalled roads, all of which are under the management of the local boards. More avenues along them are badly needed,

only 112 miles being planted with trees, a shorter length than in any other Madras District except the Nīlgiris. The main routes are the road from Bangalore, which passes through Bellary and Adoni on the way to Raichūr and Secunderābād, and that from Madras to Bombay through Bellary and Hospet. The eastern and western *tāluks* are joined by roads passing to the north and south of the Sandūr hills, and by a third which crosses the State of Sandūr by means of two narrow gorges through the hills which enclose it. Were the roads kept in proper repair, the District would be amply supplied with means of communication; but money for bridges is scarce, and in the cotton soil *tāluks* road-metal is difficult to obtain.

Famine. The whole of Bellary lies within the famine zone, irrigation works are few, and any shortage in its scanty rainfall is liable to produce distress. It has in consequence suffered perhaps more than any other District in Madras from severe and protracted famines. There were scarcities in 1802–4, 1805–7, 1824, 1884–5, and 1900; and famines in 1833, 1854, 1866, 1876–8, 1891–2, and 1896–7; and it has been truly said that 'the unfortunate ryot has hardly emerged from one famine before he is submerged under another.'

It has been calculated that during the last half-century alone the expenditure on relief and the loss of revenue due to bad seasons in Bellary have amounted to no less than 196 lakhs. The worst years were 1854, 1866, 1876–8, and 1896–7. In the famine of 1876–8 Bellary was very severely affected; more than a fifth of the population is computed to have perished from starvation or disease, and the mortality in the Adoni and Alūr *tāluks* was as high as one-third. At the Census of 1891, fourteen years after the famine, the population of the District continued to be less than at the Census of 1871, before this visitation. At the height of the famine one-half of the population were in receipt of relief in one form or other. The supreme difficulty that baffled the authorities was the absolute impossibility of getting grain to an area where the only means of transport was by bullock-cart, and there was no fodder for the bullocks. The railways will now prevent the recurrence of such a disaster. The famine of 1896–7 was severely felt in all but the Rāyadrug and Harpanahalli *tāluks*. In July, 1897, about 18,000 persons were receiving gratuitous relief by grain doles and 78,000 were employed on relief works. There was considerable mortality from cholera and measles, but, as far as could be ascertained, no deaths occurred from privation alone.

District sub-divisions and staff.

For administrative purposes Bellary is arranged into three subdivisions. The four western *tāluks* of Hospet, Hadagalli, Harpanahalli, and Kūdligi form one charge, known as the Hospet subdivision, under a Covenanted Civilian. The Bellary subdivision, consisting of Bellary and Rāyadrug, and the Adoni subdivision, consisting of Alūr and Adoni, are usually under Deputy-Collectors recruited in India. Besides the eight *tahsīldārs* in charge of these eight *tāluks*, deputy-*tahsīldārs* are stationed at SIRUGUPPA in the Bellary *tāluk* and at YEMMIGANŪR in Adoni; and stationary sub-magistrates at Bellary, Hospet, Kūdligi, and Adoni. The District Forest officer and District Superintendent of police reside at Bellary, which is also the head-quarters of the Inspector of Schools, Second Circle, of the Superintending Engineer, Third Circle, and of the Assistant Commissioner of Salt and Abkāri Revenue, Bellary Subdivision.

Civil and criminal justice.

For purposes of civil justice, part of Anantapur (which was originally included in the old Bellary District) comes under the jurisdiction of the District Judge at Bellary; but on the other hand the Adoni *tāluk* is within the Munsifi of Gooty, outside the District, appeals from which area lie to the District Court of Kurnool. There are two District Munsifs, one at Bellary and the other at Hospet. As a rule, fewer cases are dealt with by Village Munsifs in Bellary than in any other District. The number of revenue suits is also extremely small, there being no *zamīndāris* and but few large *ināms*.

The arrangements regarding criminal justice are also anomalous, the Court of Sessions at Bellary taking cognizance of sessions cases in all the *tāluks* of Anantapur except Gooty and Tādpatri, as well as those in Bellary. The Collector and the three divisional officers are first-class magistrates with the usual powers. All *tahsīldārs* and deputy-*tahsīldārs*, as well as the stationary sub-magistrates, have second-class powers, and in some cases the *tāluk sheristadārs* are third-class magistrates. Usually very few of the village magistrates use the petty powers with which they are entrusted.

The distinctive criminal caste of the District is the Korachas, an incorrigible class who wander about in gangs. Several of their gangs have settled permanently in Bellary, and are greatly aided in their depredations by the proximity of the Nizām's Dominions, where they can easily take refuge and are difficult to trace. They are some of the most daring and best-organized dacoits in the Presidency. Murders, which are numerous, are mostly due to village factions. Other crimes, such as cattle-theft, are also common, and are traceable to the

natural poverty of the District and the uncertainty of the seasons.

Land revenue administration.

Nothing is definitely known of the revenue system under the Vijayanagar kings, but according to tradition the revenue was paid in kind in the proportion of half the gross produce. The Musalmān governments which followed apparently continued the same system, though, by some method not clearly ascertainable, a minimum amount was fixed as the assessment for the whole region now constituting the Ceded Districts. This was called the *kāmil* assessment, and was retained by Aurangzeb and afterwards by Haidar Alī, though the latter and his son and successor Tipū Sultān increased the revenue by a large resumption of *ināms*. After the overthrow of the Vijayanagar empire, the country was largely in the hands of the *poligārs* already mentioned, through whom a great part of the revenue was nominally collected. The amount which reached the central government naturally varied according to the relative power of the *poligārs*, and the result was an ever-increasing impoverishment of the cultivating classes.

When the Ceded Districts were transferred to the East India Company in 1800, the whole tract was placed in charge of Munro. His first step was to do away with the interference of the eighty or more *poligārs* who were scattered over them, and to introduce a system of direct engagements with every cultivator for the revenue, the assessment varying according to the amount of land occupied. In conjunction with this, he instituted a survey, which ascertained not only the extent of the fields, but also the quality of the different kinds of soil.

While this settlement was in progress, the Government of India directed that, as a preliminary step towards a permanent settlement of the land revenue on the Bengal system, the villages should be leased to renters for a fixed sum for three years, the lessee making his own arrangements with the cultivators. In spite of the strenuous representations of Munro and the opposition of the Governor of Madras, Lord William Bentinck, this system came into force in the Ceded Districts in 1808. Munro had taken leave shortly before this, and, on his departure, the present Districts of Bellary and Anantapur were constituted a Collectorate by themselves. Though the Collector reported very strongly against the triennial leases and their damaging effect on the condition of his charge, an extension in the shape of decennial leases was introduced by order of Government in 1812. The result was a complete failure. The renters were incompetent and merciless, the ryots were contu-

macious and obstructive, and large numbers of the former became unable to pay their dues to Government. Eventually the Court of Directors ordered a return to the *ryotwāri* settlement on the expiration of the leases, and the immediate surrender of the leases was accepted in all cases where the renters were willing to relinquish them at once. The result of this disastrous experiment was a great reduction in the wealth of the District, the villages being given up by the renters with their resources much impaired. From the introduction of the *ryotwāri* settlement in 1818 down to 1859 there were several general reductions in the assessment, rendered necessary both by a succession of bad seasons and also by the fact that Munro's original settlement had imposed a higher rate than the land was capable of bearing, especially since it was calculated on the basis of the grain prices in force at the beginning of the century and these had since fallen very greatly.

In 1882 seven of the southern *tāluks* were formed into the separate District of Anantapur. A survey and settlement of the remaining *tāluks* which constitute the present Bellary District were carried out between 1884 and 1896. The excess discovered in the cultivated area was about 5 per cent., and the increase in the assessment effected (which was especially lenient in consideration of the infertility of the District and its losses by bad seasons) was Rs. 85,000, or rather less than 7 per cent. The average assessment on 'dry' land in the cotton soil *tāluks* of Adoni, Alūr, and Bellary is now R. 0-15-7 per acre (maximum, Rs. 2-8; minimum, 2 annas), and on 'wet' land Rs. 6-14-11 (maximum, Rs. 11; minimum, R. 1); while in the remaining red soil *tāluks* the average 'dry' rate is R. 0-8-8 (maximum, Rs. 2-4; minimum, 2 annas), and the average 'wet' rate Rs. 5-6-3 (maximum, Rs. 11; minimum, R. 1). Owing partly to the small extent of irrigated land, the average extent of a holding is 15 acres, or greater than in any other Madras District except the Nīlgiris.

The revenue from land and the total revenue in recent years are given below, in thousands of rupees:—

	1890-1.	1900-1.	1903-4.
Land revenue . .	18,18	19,63	20,79
Total revenue . .	28,10	30,26	32,30

Local boards.

There are two municipalities in the District, Bellary and Adoni, both established in 1867. Outside their limits local

affairs are managed by the District board, and the three *tāluk* boards of Bellary, Hospet, and Adoni, the jurisdictions of which correspond to the subdivisions of the same name. The expenditure of all these boards in 1903–4 was 2½ lakhs, of which nearly half was laid out on roads and buildings. The chief item in the receipts, as usual, is the land cess. Nineteen towns and villages have been constituted Unions under (Madras) Act V of 1884.

Police and jails.

The police force is controlled by a District Superintendent and an Assistant Superintendent. In 1904 there were 61 police stations, and the force consisted of 13 inspectors and 1,141 constables, with a reserve of 89 men. There were also 974 rural police working in conjunction with the regular force.

The District jail at Bellary town has accommodation for 323 males and 23 females, exclusive of the observation cells and hospital, which will hold 27 and 36 inmates respectively. As this does not sufficiently provide for the needs of adjoining Districts, from which prisoners are sent to this jail, 100 more cells are being constructed. The only manufacture carried on in the jail is the weaving of the woollen blankets of the country. There are nine subsidiary jails. Seven are situated at the *tāluk* head-quarters (except Bellary), and the other two at the deputy-*tahsīldārs*' stations at Siruguppa and Yemmiganūr. They provide accommodation for a total of 161 persons.

Education.

As regards education, Bellary is one of the most backward areas in Madras. At the Census of 1901 it stood seventeenth among the twenty-two Districts of the Presidency in the literacy of its male population, and last in that of its females. Persons who could read and write formed only 4·6 per cent. (8·6 males and 0·3 females) of the population. The Bellary *tāluk* contained a considerably higher proportion than any other, but in Rāyadrug only 3 per cent. were returned as literate. The total number of pupils under instruction in 1881–2 was 10,368; in 1890–1, 18,858; in 1900–1, 26,283; and in 1903–4 only 14,861. The number of educational institutions of all kinds in March, 1904, was 627, of which 604 were classed as public, and the remainder as private. Of the former, 11 were managed by the Educational department, 36 by the local boards, and 8 by the two municipalities; 314 received grants-in-aid, and 235, though not aided, conformed to the rules of the department. These institutions included 591 primary, 9 secondary, 3 training and other special schools, and the Wardlaw College at Bellary town. The number of girls in them was 1,504. As usual, the majority of the pupils were only in primary classes. The percentage of

boys of school-going age in these classes was 18, and of girls 2. Among Musalmāns the corresponding figures were 19 and 2. There are 13 Panchama schools in the District, with 479 pupils. The total expenditure on education in 1903-4 was 1·22 lakhs, of which Rs. 34,000 was derived from fees. Of the total, Rs. 8,500 was devoted to primary education.

Hospitals and dispensaries. Bellary possesses seven hospitals. Two are maintained by the municipalities; of the other five, which are all kept up by the local boards, four are at *tāluk* and one at a deputy-*tahsīldār's* head-quarters. They have a total accommodation of 95 beds; 57 for males and 38 for females. The Bellary hospital, founded in 1842, with a small endowment of Rs. 2,500, has 40 beds. There are also five dispensaries maintained by the boards in certain of the larger villages, and two more by the municipality at Bellary. The total number of cases treated in 1903 was 129,000, of whom 900 were in-patients, and 3,000 operations were performed. The total expenditure was Rs. 31,000. There is a hospital for women at Bellary town, built from subscriptions to the Victoria Memorial Fund, and two others are to be opened shortly at Adoni and Hospet.

Vaccination. Vaccination has been efficiently performed in late years. In 1903-4 the number of persons protected was 32 per 1,000 of the population, compared with the average in the Province as a whole of 30. Vaccination is compulsory in the two municipalities of Bellary and Adoni, but in none of the nineteen Unions.

[For further particulars of the District see the *Bellary Gazetteer*, by W. Francis, 1904.]

Adoni Subdivision.—Subdivision of Bellary District, Madras, consisting of the ADONI and ALŪR *tāluks*.

Adoni Tāluk.—Northernmost *tāluk* of Bellary District, Madras, lying between 15° 30′ and 15° 58′ N. and 76° 56′ and 77° 38′ E., with an area of 839 square miles. The population in 1901 was 178,784 compared with 160,795 in 1891. It contains three towns, ADONI (population, 30,416), the head-quarters, YEMMIGANŪR (13,890), and KOSIGI (7,748); and 191 villages. The demand for land revenue and cesses amounted in 1903-4 to Rs. 3,44,000. With the *tāluks* of Alūr, Bellary, and Rāyadrug, Adoni forms the great level eastern plain of the District, most of which is covered with fertile black cotton soil and is broken only by a few scattered rocky eminences. Cotton, *cholam* (*Sorghum vulgare*), and *korra* (*Setaria italica*) are the principal crops, and the soil is the best in the District after Alūr, the average assessment on unirrigated land being 14 annas an

acre. The crops are, however, almost entirely dependent upon rainfall, only 1 per cent. of the total area, most of which is supplied by wells, being protected from drought in all seasons. It is thus extremely liable to scarcity, and suffered very severely in the great famine of 1876–8, when one-third of the inhabitants perished from starvation or disease.

Alūr.—Eastern *tāluk* of Bellary District, Madras, lying between 15° 8′ and 15° 44′ N. and 76° 57′ and 77° 26′ E., with an area of 686 square miles. The population in 1901 was 98,568, compared with 88,088 in 1891, giving an increase during the decade of nearly 12 per cent., one of the highest rates in the District. In the 1876–8 famine, however, it suffered more severely than any other *tāluk* in Bellary, and the inhabitants in 1901 were only a few hundreds more than in 1871. It contains 106 villages but no town, the head-quarters, Alūr, being an ordinary agricultural village. The proportion of the area of Alūr which is arable is higher than in any other *tāluk*; and its cotton soil, which covers 77 per cent., is of the typically heavy variety and the best in the District, the average assessment per acre on 'dry' land being as high as Rs. 1–4–0. The incidence of the land revenue per head of the population is also much higher than in any other *tāluk*. The demand for land revenue and cesses amounted in 1903–4 to Rs. 4,14,000. A bumper crop from its rich lands gives the ryots enough to tide them safely over a succeeding year of failure; but the high proportion of cotton soil, in which the cultivation depends entirely upon the rainfall, and the almost complete absence of irrigated land, leave no part of it protected against a succession of bad seasons; while the facts that it has the smallest area of forest land in the District and that (especially along its eastern border) water is extremely scarce, lying at a great depth and being often brackish, tell severely upon the cattle in time of famine. *Cholam* and *korra* are the staple crops, and the area under cotton is the largest in the District.

Bellary Subdivision.—Subdivision of Bellary District, Madras, consisting of the BELLARY and RĀYADRUG *tāluks*.

Bellary Tāluk.—Eastern *tāluk* of the District of the same name, Madras, lying between 14° 57′ and 15° 44′ N. and 76° 40′ and 77° 10′ E., with an area of 962 square miles. The population in 1901 was 193,401, compared with 180,353 in 1891. The *tāluk* contains two towns, BELLARY (population, 58,247), the head-quarters and the capital of the District, and SIRUGUPPA (5,805); and 156 villages. The demand for land revenue and cesses amounted in 1903–4 to Rs. 4,23,000, being the highest

in the District. As much as four-fifths of the total area, a higher proportion than in any other *tāluk*, is covered with black cotton soil, the remaining fifth being red land. Except in the extreme south, where it is bounded, and in places broken up, by the spurs of the Copper Mountain, it forms a wide level expanse diversified only by low granite hills. It slopes north and north-eastwards towards the Tungabhadra and the Hagari; the Pedda Vanka, one of the streams which carry its drainage into the latter, is of a respectable size. It is the largest, most populous, and best-educated *tāluk* in the District; and it contains the highest proportion of Musalmāns, nearly four-fifths of all the Christians, and an unusual number of the few Jains who are found there. More than half the population speak Kanarese, only a fifth talking Telugu. The land served by the Tungabhadra channels about Siruguppa is the most fertile in the District. *Cholam* and *korra* are the staple crops, but the area under cotton is large and a considerable amount of *cambu* is grown. The forest area is smaller than in any *tāluk* except Alūr, and the rainfall is the lightest in the District.

Rāyadrug Tāluk.—South-eastern *tāluk* of Bellary District, Madras, lying between 14° 28′ and 15° 4′ N. and 76° 47′ and 77° 21′ E., with an area of 628 square miles. The population in 1901 was 82,789, compared with 78,625 in 1891. The demand for land revenue and cesses amounted in 1903-4 to Rs. 1,86,000. It contains only one town, RĀYADRUG (population, 10,488), the head-quarters, and 71 villages. The *tāluk* contains a far smaller proportion of black cotton soil than the other three eastern *tāluks* of Adoni, Alūr, and Bellary. Twenty-seven per cent., mainly consisting of land in the basin of the Hagari, is cotton soil; while about a fifth is red land, and more than one-half is covered with the light mixed soils. The Hagari and its tributary the Chinna Hagari drain practically the whole area. Rāyadrug has the smallest population of any *tāluk* in the District, and its people are the worst educated. More than half of them speak Telugu, and two-fifths Kanarese. It contains a large number of wells, and the spring channels which are annually dug from the Hagari are only second in importance to those from the Tungabhadra. They are cleared every year by the joint labour of the villagers who profit by them; and the provisions of section 6 of Act I of 1858, under which any person neglecting or refusing to contribute his share of the customary labour is liable to pay twice the value of that labour, are rigorously enforced. Most of the land supplied by these channels is cultivated with rice, and the

area under this crop is far higher than that in any other *tāluk*. But much of the land is very infertile, the area under horse-gram (the characteristic crop of poor soils) is high, and one-fifth of the cultivable area is waste. *Korra* is the staple food-crop, and not *cholam* as elsewhere in the District. A considerable quantity of *cambu* is also raised.

Hospet Subdivision.—Subdivision of Bellary District, Madras, consisting of the HOSPET, HADAGALLI, KŪDLIGI, and HARPANAHALLI *tāluks*.

Hospet Tāluk.—Western *tāluk* of Bellary District, Madras, lying between 15° 0′ and 15° 29′ N. and 76° 17′ and 76° 48′ E., with an area of 540 square miles. The population in 1901 was 101,947, compared with 92,512 in 1891. The *tāluk* contains two towns, HOSPET (population, 18,482), the head-quarters, and KAMPLI (9,803); and 121 villages. Of the villages the best known is Hampi, which has given its name to the wonderful ruins of the old city of VIJAYANAGAR which lie scattered around. The demand for land revenue and cesses amounted in 1903–4 to Rs. 2,08,000. Containing the rugged wildernesses of granite hills round Daroji and Kampli and many outliers from the Sandūr and Copper Mountain ranges, Hospet is the most hilly area in the District. Nine-tenths of it is covered with light mixed soils. Only one-twelfth is black cotton soil, and even this is scattered in many isolated patches and does not occur in any one continuous spread. Kanarese is the prevailing vernacular. It is the only part of Bellary of which any considerable proportion is protected from drought in all seasons, 14 per cent. of the cultivated area, most of which is supplied by the Tungabhadra channels, being safe from famine. It consequently suffered less in the distress of 1876–8 than any part of the District. Some of this irrigated land is very valuable. It is reported that fields round Kampli have changed hands at prices working out at Rs. 1,200 per acre. Much of it, however, is malarious, and some of the villages near Hospet town are almost deserted, the people being compelled by fever to live elsewhere. Sugar-cane and rice are the chief crops raised on the irrigated land, the area under sugar-cane being considerably more than half of the total under that crop in the whole District. Owing to the many hills, the proportion of the total area which is arable is lower than in any other *tāluk*.

Hadagalli.—Western *tāluk* of Bellary District, Madras, lying between 14° 46′ and 15° 14′ N. and 75° 40′ and 76° 22′ E., south and east of the Tungabhadra, with an area of 585 square miles. The population in 1901 was 92,094, compared with

104,040 in 1891. There are 87 villages, but no town. The head-quarters, after which it is named, is a village of no importance. The demand for land revenue and cesses amounted in 1903-4 to Rs. 1,81,000. A tract in the southern corner, comprising nearly one-third of the area, is black cotton soil. Of the remainder, mixed soils occupy about two-thirds and red land one-third. It is one of the flattest *tāluks* in the District, for its many undulations are of the long and low variety, and only in two places in the south can it be said to be broken by hills. The whole drains ultimately into the Tungabhadra, the eastern half by way of the Chikka Hagari. It is perhaps the healthiest part of the District. The abrupt decline which occurred in the number of its inhabitants between 1891 and 1901 was due to the fact that in the former year the Census fell upon a date on which large crowds of pilgrims from Bombay and Mysore were assembled at the great festival at Mailār, and consequently the population as then enumerated was greatly above the normal. *Cholam* and *korra* are the staple crops; but cotton is raised on a considerable area in the south, and castor also is extensively grown. The large acreage of horse-gram, a crop which will grow on the poorest land with the lightest rainfall, and the fact that the population per acre of cultivated land is lower than in any other *tāluk*, show, however, that the land is not fertile.

Kūdligi.—Western *tāluk* of Bellary District, Madras, lying between 14° 33′ and 15° 4′ N. and 76° 9′ and 76° 45′ E., with an area of 863 square miles. The population in 1901 was 103,985, compared with 94,296 in 1891. It contains one town, KOTTŪRU (population, 6,996), and 116 villages. The head-quarters, from which it takes its name, is a mere village. The demand for land revenue and cesses amounted in 1903-4 to Rs. 1,48,000. The *tāluk* is perhaps the most picturesque portion of the District. Extensive date-palm groves fringe the streams, it is famous for tamarinds, and the hilly country in the north is the wildest and most rugged in Bellary. Round Kottūru there is a little black cotton soil; but two-thirds of the *tāluk* consists of very poor red land, and a fifth is covered with mixed soils. Several places have a bad name for malaria, and it is more sparsely peopled than any other *tāluk* in the District. It supplies Bellary, Sandūr State, and even parts of Alūr, with toddy from date-palms, and exports considerable quantities of tamarind. Kūdligi is the poorest *tāluk* in the District. Its soil is the worst in quality, the 'dry' land paying an average assessment of only 5 annas per acre and much

being rated at as little as 2 annas; the land revenue derived, and the incidence per head of the population, are less than anywhere else; the percentage of the holdings which pay less than Rs. 10 is higher than in any other *tāluk*; and nearly 10 per cent. of them pay one rupee or less. Only three-fifths of the *tāluk* is arable, the forest area being larger than in any other, and of the arable area one-third is waste. One reason for this large proportion is that much of the waste land is thickly covered with trees, and the ryots hesitate to pay the considerable sums which under the ordinary rules would be due for the value of this growth. Recently, therefore, a system has been sanctioned under which the ryot may pay the usual tree-tax until the total value of the trees has been discharged, instead of the whole value at once in one sum. So far the system has been a success. The forest area in the *tāluk* has also been added to recently, which will again reduce the proportion of waste. Even the land that is cultivable is often too poor to stand continuous cropping; and the area under cultivation consequently fluctuates considerably, while a large proportion produces only horse-gram, a crop that will flourish with little rain on almost any soil. Kūdligi has, however, a larger area served by tanks and wells than any other *tāluk*. Thus, although it possesses no channels, about 4 per cent., quite a high figure for a Bellary *tāluk*, is protected in all seasons. Moreover the cattle have ample grazing-ground in the numerous forests. *Cholam* and *korra* are, as usual, the staple food-grains, and a larger area is sown with castor than in any other *tāluk*.

Harpanahalli Tāluk.—South-western *tāluk* of Bellary District, Madras, lying between 14° 30′ and 15° 0′ N. and 75° 42′ and 76° 13′ E., adjoining the Mysore plateau, with an area of 611 square miles. The population in 1901 was 95,646, compared with 82,241 in 1891. The *tāluk* contains only one town, HARPANAHALLI (population, 9,320), the head-quarters, and 81 villages. The demand for land revenue and cesses amounted in 1903–4 to Rs. 1,63,000. At Chigateri gold is found in some of the streams. The cattle-fair at Kuruvatti is important. The *tāluk* lies at a greater elevation than any other in the District. It is traversed by two small lines of hills, and is everywhere diversified by picturesque undulations with pleasant valleys lying among them. Its eastern half drains eastwards into the Chikka Hagari, and the remainder slopes southwards towards the Tungabhadra. In the Chikka Hagari basin patches of black cotton soil, aggregating about one-eighth of the area of the *tāluk*, are to be found, but practically the whole of the rest

is covered with mixed soils. *Cholam* and *korra* are, as usual throughout Bellary, the staple food-grains. Castor is exported in considerable quantities; and a characteristic crop is the yellow-flowered niger seed (*Guizotia abyssinica*), grown for the oil it produces, which flourishes amazingly on the most barren-looking soils. It is generally sown along with *rāgi*. The only irrigation is that from tanks and wells, there being no river channel in the whole of the *tāluk*.

Adoni Town.—Head-quarters of the *tāluk* of the same name in Bellary District, Madras, situated in 15° 38′ N. and 77° 17′ E., on the road from Bangalore to Secunderābād, connected with Guntakal junction by the north-west line of the Madras Railway, and distant 307 miles from Madras city. It is the largest town in the District after Bellary, and is a steadily growing place with a population (1901) of 30,416, of whom 60 per cent. were Hindus and as many as 37 per cent. Musalmāns. Christians are very few.

Adoni possesses a strong fort on the top of a precipitous cluster of rocky hills; and, being the capital of an important frontier tract in the fertile *doāb* of the Kistna and Tungabhadra, it played a conspicuous part in the intestine wars of the Deccan. In the fourteenth century it was perhaps the finest stronghold of the Vijayanagar kings, and Firishta says that they regarded it as impregnable, and had all contributed to make it an asylum for their families. Though several times threatened, it was never taken until after their final downfall at the battle of Tālikotā in 1565. In 1568 the Sultān of Bijāpur at length captured it; and thereafter it remained a Muhammadan possession until it passed, with the rest of the Ceded Districts, to the Company in 1800. One of the earliest of the Bijāpur governors was Malik Rahmān Khān (1604–31), whose tomb stands in a picturesque position on the cluster of rocks on which the fort is built, and is still maintained by a grant from Government. The best known of them is Sīdī Masūd Khān (1662–87), who built the beautiful Jāma Masjid, employing materials from several neighbouring Hindu temples which he had destroyed. This cost 2 lakhs and is one of the finest mosques in the Presidency. In 1686, when Aurangzeb marched south to annex the Bijāpur dominions, he sent a general to take Adoni. Failing in other methods, and knowing Masūd Khān's love for the mosque he had built, he trained his guns, says tradition, upon the building and threatened to fire upon it unless the fort was surrendered. Masūd Khān, who held the mosque dearer than his life, at once capitulated. In 1756 the

Nizām granted Adoni as a *jāgīr* to his brother Basālat Jang, who made it his capital. Haidar Alī of Mysore twice attacked the fortress without success while it belonged to Basālat Jang; and, though in 1778 he defeated the Marāthās under its walls and in the following year laid waste the country round, it did not surrender. Basālat Jang died in 1782, and lies buried in an imposing tomb to the west of the town, which is still carefully kept up. In 1786 Tipū, Haidar's son and successor, captured the place after a siege of one month, demolished the fortifications, and removed the stores and guns to Gooty. It formed part of the possessions of Tipū which were allotted to the Nizām at the partition of 1792, and in 1800 the Nizām ceded it to the Company. The remains of this famous fort stand on five hills, which are grouped in an irregular circle and enclose a considerable area. The two highest of the five are called the Bārakhilla and the Tālibanda, and on the top of the former are the old magazines and a curious stone cannon. The oldest antiquities in the place are some Jain figures cut on the rocks, which are now cared for by the Jains. The town below the fortress consists of nine *pettahs* or suburbs, and most of the streets are very narrow and crooked, though improvements have been made of late.

Adoni is the chief centre of the cotton trade of the District and the commercial mart for all the north. It contains five factories for pressing and cleaning cotton, all worked by steam, which employ on an average 500 hands in the season. The chief industries are the weaving of cotton and silk. The cotton carpets made here have a considerable reputation for both colour and durability, and are sold all over the Presidency as well as in other parts of India. Adoni was made a municipality in 1867. The municipal receipts and expenditure during the ten years ending 1902–3 averaged Rs. 44,900 and Rs. 53,800 respectively. In 1903–4 they were Rs. 56,500 and Rs. 50,000; the former consist chiefly of the proceeds of the taxes on houses and land, a contribution from Government, and the water rate. The town possesses water-works, which were completed in 1895 at a total cost of Rs. 1,57,000. The annual cost of their maintenance amounts to Rs. 5,200. The water is obtained from a large artificial reservoir at the foot of the rocky hills on which the fort stands. This has been enlarged and improved, and fitted with filter-beds and settling-tanks. Its capacity is 45 million cubic feet, but the supply is very precarious, and it has already once been necessary to pump from wells sunk in its bed. The Rāmanjala spring, at the foot of

the hills near the reservoir, supplements the supply for four months in the year. This spring never dries up.

Bellary Town.—Head-quarters of the District and *tāluk* of the same name, Madras, situated in 15° 9′ N. and 76° 51′ E. It is one of the chief military stations in Southern India, and is garrisoned by both European and Native troops. The force maintained is, however, considerably smaller than it used to be. Bellary is the seventh largest town in the Presidency. Its population in 1871 was 51,766; in 1881, 53,460; in 1891, 59,467; and in 1901, 58,247. The growth has thus been slow. The decline during the last decade was due to the removal of some of the troops. In 1901, 60 per cent. of the inhabitants were Hindus and 32 per cent. Musalmāns; Christians numbered about 4,000.

The town stands in the midst of a wide, level plain of black cotton soil. The Southern Mahratta Railway passes through it, connecting it with Hubli on the west and with Guntakal junction on the east, by which route it is 305 miles from Madras. It also lies on the trunk road from Bangalore to Secunderābād. The most conspicuous objects are the Fort Hill and the Face Hill, the latter so called from the resemblance of certain rocks on its summit to a human face. They are bare, rocky elevations with hardly any vegetation on them. The fort on the former gave Bellary its ancient importance and led to its selection as the site of a cantonment. This fortress consists of an upper citadel on the rock, the top of which is 1,976 feet above the sea, and a lower enclosure at the foot. The citadel is guarded by three lines of strong fortifications, which are still in excellent repair, and contains a number of substantial buildings and an ample water-supply from reservoirs constructed in the clefts of the rocks. There is only one way up, which is strongly defended. The lower fort is surrounded by a rampart with numerous bastions, faced by a deep ditch and glacis. Magazines, the quarters of the guard in charge of them, the chief church of the civil station, and several public offices and schools are built within this. It used also at one time to contain an arsenal. The town includes the civil station to the east of the fort, the cantonment on the west, and on the south, between these two areas, the Cowl Bazar and the suburbs of Bruce-pettah and Mellor-pettah, named after two civil officers once stationed at Bellary.

Until the British made Bellary a cantonment it contained little but its fort. This was originally the residence of a chieftain called Hanumappa Naik, whose family held it as vassals

of the kings of Vijayanagar and afterwards of the Sultāns of Bijāpur. About 1678 it was taken from them by the famous Marāthā chief Sivajī, because as he was passing that way some of his foragers had been killed by the garrison; but he restored it again at once on condition that tribute should be paid him. About 1761 it became tributary to Basālat Jang of ADONI. The chief quarrelled with Basālat Jang and refused to pay tribute. The place was accordingly besieged by a force from Adoni. The chief applied for aid to Haidar Alī, who made a wonderful forced march, which has been graphically described by Wilks, and routed the Adoni troops. He then, however, seized it for himself and erected the present fortifications. Tradition says that they were designed by a Frenchman in Haidar's service, and that Haidar, finding the fort was commanded by the Face Hill, hanged him afterwards at the main guard gate. The fort was in the possession of Mysore until 1792, when, with others of Tipū's territories, it was given to the Nizām. The Nizām ceded it to the British with the rest of the District in 1800. It did not become the head-quarters of the District until 1840, the Collector until that year living at ANANTAPUR.

Though Bellary is situated 1,400 feet above the sea, its climate is hot and very dry, but it is considered a healthy town. Its great want is a proper water-supply, and it is hoped that the completion of the great irrigation project connected with the TUNGABHADRA will supply this. Besides being the head-quarters of the District staff, it is also the residence of a Superintending Engineer and an Inspector of Schools. A company of the Southern Mahratta Railway Volunteer Rifles is also located here, and the town is the head-quarters of the Roman Catholic Mission and of the London Mission. It contains a District jail, with accommodation for 346 prisoners.

The chief educational institution is the Wardlaw College, which was founded as a school in 1846 by the Rev. R. S. Wardlaw, D.D., of the London Mission, and was raised to a second-grade college in 1891. It is the only Arts college in the Ceded Districts. In 1903–4 it had an average daily attendance of 319 boys, of whom 17 were in the F.A. class. A high school is maintained by the municipality; and there is a technical class at St. Philomena's high school managed by the nuns of the Order of the Good Shepherd, the pupils of which are almost all Europeans or Eurasians.

Bellary was created a municipality in 1867. The receipts and expenditure during the ten years ending 1902–3 averaged Rs. 80,000 and Rs. 85,000 respectively. The income in

1903-4 was Rs. 1,17,000, and the expenditure Rs. 90,000. Of the former, Rs. 44,000 was contributed by Government, and the rest was principally derived from the house and land taxes and tolls, while the chief items of expenditure included conservancy, roads and buildings, and education. The municipal hospital, known as the Sabhāpati Mudaliyār Hospital, was founded in 1842 and has forty beds. The building was presented by the gentleman whose name it bears. There are two other dispensaries. The industries of Bellary include a small distillery, two steam cotton-presses, and a steam cotton-spinning mill. The latter, established in 1894 and fitted with machinery of the latest pattern, employs 520 hands. The number of spindles is 17,800.

Harpanahalli Town.—Head-quarters of the *tāluk* of the same name in Bellary District, Madras, situated in 14° 47′ N. and 76° 0′ E., in a hollow surrounded by low hills. Population (1901), 9,320. Between 1868 and 1882 it was the head-quarters of the Deputy-Collector, who then held charge of the four western *tāluks* of the District. It was formerly the seat of one of the most powerful of the local chieftains or *poligārs*, who kept all authority in their hands throughout the numerous changes of sovereigns which occurred in this part of the country. The remains of the fort are still standing, and, being surrounded by water on three sides, it must have been a strong place. The *poligārs* rose to power after the downfall of the Vijayanagar empire at the battle of Tālikotā in 1565, and by the end of the seventeenth century their possessions comprised 460 villages, for which they paid a tribute of over 8 lakhs. The chiefs were useful to Haidar Alī of Mysore, which still further strengthened their position, but his son Tipū treacherously seized the *poligār* and imprisoned him and most of his relations. After the death of Tipū at the storm of Seringapatam in 1799, the place was occupied by a former Dīwān of Harpanahalli on behalf of a child of the *poligār* family. But he yielded peacefully to General Harris when the latter marched through the country, and he and the *poligār* were rewarded with considerable estates. Both families are now extinct. The industries of the town include a little weaving of coarse cotton stuffs and woollen blankets, and some unambitious brass-work.

Hospet Town ('new town').—Head-quarters of the *tāluk* and subdivision of the same name in Bellary District, Madras, situated in 15° 16′ N. and 76° 24′ E., on the Southern Mahratta Railway. A branch line has been built from here to Kottūru.

Population (1901), 18,482. The town consists of one long market street, with a temple at the end and a number of small lanes opening off it. The chief merchants live in the suburb of Chittavādigi, which is the centre of trade for the western *tāluks* of the District. Owing partly to the fever which is gradually invading the western portion of Chittavādigi and partly to the existence of the railway station in Hospet, Chittavādigi is extending eastwards to join the rest of the town. The fever is worst on the land irrigated by channels from the Tungabhadra. More than one village among the 'wet' fields has been almost entirely deserted; and even the farm-labourers frequently live in Hospet or Chittavādigi, and go out daily to their work rather than reside on the irrigated land. Mainly owing to this fact, the population of Hospet advanced by more than 40 per cent. during the ten years ending in 1901. The chief industry is cotton-weaving. There is a native tannery, and five or six families make brass toe-rings, bangles, cattle-bells, &c. The trade in jaggery (coarse sugar), most of which goes by rail towards Bombay, is large; but the decline in prices, due to the competition of sugar refined by European processes, has affected it adversely. The jaggery is made from the cane irrigated by the Tungabhadra channels. So universal is the use of iron cane-crushing mills, that two native smiths in Hospet have learnt to make and repair them. They procure the necessary castings, &c., from Madras and adjust them and put them together. One of them employs a lathe worked by bullock-power. Conspicuous objects in the town are three stone Muhammadan tombs east of the bazar-street, known locally as the three mosques, and two other similar erections near the divisional officer's bungalow.

The town was built by the Vijayanagar king Krishna Deva between 1509 and 1520 in honour of Nāgalādevī, a courtesan whom he had known in his youth, and whom he married after he became king. He called it, after her, Nāgalāpur, and it was his favourite residence. In his time it was the entrance gate, as it were, to the city of Vijayanagar for all travellers coming from Goa and the west coast. Krishna Deva also made the enormous embankment south of the town, connecting the two ends of the two parallel ranges of hills which farther south enclose the valley of SANDŪR. It was carried out with the aid of João de la Ponte, a Portuguese engineer whose services had been lent by the Governor-General of Goa. Immediately south of Hospet, at the northern end of the big embankment, rises a prominent hill of a curious conical shape

with smooth grass-covered sides, which is called the Joladarāsi, or 'heap of *cholam*.' The youth among the local Boyas used to back themselves to run up it without stopping, carrying a bag of grain on their shoulders. Farther east along this same range is the bold peak of Jambunāth Konda (2,980 feet above the sea); and half-way up this, in a very picturesque glen, standing on a broad artificial terrace, is the temple of Jambunāth. From Hospet to the foot of the hill is about 3 miles, and a paved way leads up to the temple.

Kampli.—Town in the Hospet *tāluk* of Bellary District, Madras, situated in 15° 25′ N. and 76° 36′ E., on the bank of the Tungabhadra. Population (1901), 9,803. Until 1851 it was the head-quarters of the Hospet, then called the Kampli *tāluk*, but it is now declining in importance. The town has an ancient history, having been a Chālukyan capital in the eleventh century; and its fort, which stands on the river bank at the end of a most picturesque reach, must have been of some strength. It is now being deserted in favour of the more healthy suburb known as the *pettah*, which is farther from the river and raised above the irrigated land, and consequently less malarious. The only industry is the weaving of silk fabrics. It is doubtful whether even this is what it was a dozen years ago. The weavers are unprogressive, and most of them have fallen into the hands of the local capitalists, who advance materials and take the stuffs they weave, paying them only for their labour. The town is surrounded by irrigated land watered from channels from the Tungabhadra, and a good deal of coarse sugar is still made; but this does not command its former price, having been largely ousted by the superior article refined by European processes.

Kosigi.—Town in the Adoni *tāluk* of Bellary District, Madras, situated in 15° 51′ N. and 77° 15′ E., on the north-west line of the Madras Railway. Population (1901), 7,748. It is built close under a hill between 400 and 500 feet high, the sides of which are covered with huge blocks of granite lying piled one upon the other in an absolute confusion, which can have been brought about by nothing short of severe earthquakes. The many rocky hills round about the town are conspicuous for the great size of the granite blocks which form them; and on one, just west of the railway about 3 miles south of Kosigi station, stands a tor which is perhaps the finest in Southern India. It consists of a huge tower-like mass, on the top of which are perched two upright, tall, thin blocks of granite, the whole being 80 feet high. It is conspicuous for

miles in every direction, and is known to the natives as 'the Sisters' (*akkachellalu*). Round the lower part of the hill under which Kosigi is built run ruined lines of fortifications. In the old turbulent days the place was the stronghold of a local chief, one of whose descendants is now its headman. Like others with similar pedigrees, he keeps his womankind *gosha*. The doings of his ancestors are commemorated on half a dozen of the *vīrakals*, or stones recording the deeds of heroes which are common all over the District, of more than ordinary size and elaboration. About a mile south of the town, in a corner between three hills, are five stone kistvaens. Only one is now intact. It is larger than such erections usually are. The industries include a tannery and the weaving of the ordinary cotton cloths worn by the women of the District. Kosigi was very severely affected by the famine of 1877, and in 1881 its population was 27 per cent. less than in 1871. But during the next decade its inhabitants increased at the abnormal rate of 44 per cent., and it is now a fairly flourishing place.

Kottūru.—Town in the Kūdligi *tāluk* of Bellary District, Madras, situated in 14° 49′ N. and 76° 14′ E. Population (1901), 6,996. It is a centre of the Lingāyats, who form a very large proportion of the population. It is sanctified in their eyes by the exploits of a *gurū* of their sect, named Basappa Lingaswāmi, who lived, taught, and eventually died within it at some date which is not accurately known. A long *purāna* in Kanarese gives an account of him, but it is legendary rather than historical, and is of no value to the searcher after facts. His tomb is in a large rectangular stone building on the eastern side of the town. It is enclosed all round with granite walls, parts of which are carved (the carving being sometimes also coloured, which is unusual in these parts), and is supported by granite pillars, some of which are well sculptured. West of the main entrance stands an almost shapeless image, said to represent Gajalakshmī, which when removed from its upright position and laid upon the ground is reputed to have great efficacy in difficult cases of child-birth. Basappa Lingaswāmi, or Kotra (Kottūru) Basappa as he is called locally, is worshipped in the big temple in the middle of the town, known as Kotra Basappa's temple. Kotra and its allied forms Kotri, Kotravva, Kotrappa, &c., are still the most popular names in the town for boys, and girls are similarly called Kotramma, Kotri Basamma, &c. The shrine used apparently to be dedicated to Vīrabhadra, and it is said that the image of this god still stands behind the Lingāyat emblem. The Lingāyats

among the *poligārs* of Harpanahalli are said to have added to the temple, and one of them gave it a palanquin decorated with ivory, which is still preserved. Basappa, says the story, came to Kottūru when it was a stronghold of the Jains, vanquished them in controversy, converted them to the Lingāyat faith, and set up a *lingam* in their principal temple. This temple is known as the *Mūrukallu-matha*, or 'three-stone-*math*,' each side of each of its three shrines being built of three large blocks of stone. It is an unusually good specimen of an undoubtedly Jain temple, and has three separate shrines, facing respectively north, east, and south, and all opening on to a central chamber in which the image now stands. The only industry is the weaving of cotton cloths, most of which is in the hands of the Lingāyats. But the place is a considerable centre of commerce, and its importance will doubtless receive a great impetus now that the railway from Hospet has been completed.

Mailār.—Village in the Hadagalli *tāluk* of Bellary District, Madras, situated in 14° 48′ N. and 75° 42′ E. Population (1901), 1,722. It is famous throughout the District for the annual festival held at its temple every February, at which a cryptic sentence containing a prophecy (*kāranikam*) regarding the prospects of the coming year is uttered.

The temple is dedicated to Siva in his form of Mallāri. The story is that a demon called Mallāsura ('the demon Malla') and his brother, having by severe penances extracted from Brahmā a promise that they should never be harmed by any being in any form then existing, began to harass the *rishis*. The gods were appealed to, and Siva put on a new form, so as to evade Brahmā's promise, and taking with him forces to the number of seven crores, also in new forms (such as dogs) which had never before served in an army, warred with Mallāsura and his brother for ten long days and at length slew them both with his bow and overcame their followers. The gods and *rishis* were in transports at his triumph, and joined in foretelling unbroken prosperity as the fruit of it. The ceremonies and rites at the festival form a curious sort of miracle-play representative of this war in heaven and its result. The pilgrims to the festival go about shouting *Elukoti! Elukoti!* ('seven crores!') instead of the name of the god as usual; and the *goravas*, the special name for the men (and women) who have dedicated themselves to this temple in the curious manner prevalent in the western *tāluks*, dress themselves up in blankets and run about on all fours, barking and pretending that they

are Siva's army of dogs. After residing for ten days, the period during which Siva fought with Mallāsura and his brother, on a hillock outside the village, the god returns. He is met half-way by the goddess, his wife, who comes to congratulate him on his success, and the two remain for some time at the place of meeting. The expectation of good times to follow the victory is represented by the prophecy or *kāranikam*. It is pronounced on this tenth day, and all the thousands of people present crowd round the place where the god and goddess have halted. A huge wooden bow, about 10 feet long, symbolic of that with which Siva slew Mallāsura, is brought and placed on end. A Kuruba (the same man has performed the ceremony for many years in succession) who has fasted for the past week steps forward and receives the benediction of the temple manager. He then climbs partly up the bow, being supported by those nearest him. For a minute or two he looks in a rapt manner to the four points of the compass, then begins shuddering and trembling as a sign that the divine afflatus is upon him, and calls out 'Silence!' The most extraordinary and complete silence immediately falls upon the great crowd of pilgrims, every one waiting anxiously for the prophecy. After another minute's pause and again gazing upwards to the heavens, the Kuruba pronounces the word or sentence which foretells the fate of the coming year, invariably following it with the word *Parak!* meaning 'Hark ye,' or 'Take ye note.' It is stated that in the year before the Mutiny the prophecy was 'they have risen against the white-ants.' Latterly the sentence has either been of exceedingly cryptic meaning, or has related to the prospects of the crops.

Rāmandrug.—Sanitarium of Bellary, situated in 15° 8′ N. and 76° 30′ E., within the limits of the Native State of SANDŪR, attached to the Madras Presidency. Criminal jurisdiction has been made over by the Rājā to the Madras Government (with certain restrictions), and affairs within it are controlled by the Collector of Bellary. The sanitarium consists of a small plateau, 1¼ miles long and half a mile wide, on the top of the southern of the two ranges of hill which enclose the valley of Sandūr. It is 3,256 feet above the sea and about 1,400 feet above the bottom of the valley. On all sides the ground falls sharply away; and this characteristic, though it affords numerous excellent views into the Sandūr valley on the one side and over the western *tāluks* of Bellary as far as the Tungabhadra on the other, gives the place a cramped air which the various paths cut along the hill-sides do not serve to

remove. The place is called after the village and fort of the same name which stand at the southern end of the plateau. Remains of the old defences, in the shape of a considerable wall of enormous blocks of stone, are still visible. Local tradition says they were built by, and named after, a *poligār* called Komāra Rāma, who is still a popular hero. A favourite play in Sandūr is one in which his step-mother treats him as Potiphar's wife did Joseph, but in which his innocence is ultimately established. The buildings on the plateau include barracks, a hospital, &c., built in 1855 and designed to accommodate about 70 soldiers; and some fifteen bungalows belonging to various residents of Bellary. Two carriage roads run along the whole length of the station. There are several mineral springs in it. A short distance down the cliff on the southern side is a cave leading into a passage, which has been followed a great distance into the hill. The annual rainfall averages 39 inches, and the temperature is 12° cooler than that of Bellary. The mean for April and May is about 80°, and the highest figure on record in the hottest months is 87° in the shade. During the south-west monsoon the chilly fogs which wrap the place about from sunset to 10 a.m., and often later, make fires almost a necessity.

Three roads lead to the station: one from Bāvihalli, a village on the road between Sandūr and Hospet; a second from Hospet; and the third from Nārāyanadevarakeri. They are all practicable for carts. The first was the usual route from Bellary before the railway line was extended to Hospet. The second road, that from Hospet, is now the usual route, the distance from the railway station being 14 miles. Europeans reside in the station only in the hotter months from March to June. A sub-magistrate is stationed here during this period. For the rest of the year the place is deserted, except by the inhabitants of the village of Rāmandrug.

Rāyadrug Town.—Head-quarters of the *tāluk* of the same name in Bellary District, Madras, situated in 14° 42′ N. and 76° 51′ E. Population (1901), 10,488. Rāyadrug means 'king's hill-fortress,' and the place is so named from the stronghold on the rocky hill at the foot of which it is built. The hill consists of two parts, one considerably higher than the other, connected by a low saddle. The citadel is on the higher peak, 2,727 feet above the sea; but the enclosing walls of the fortress surround both the heights and the saddle between them, and run, it is said, for a distance of 5 miles round the hill. Though the gates are in ruins, the lines of walls

which remain show what a formidable stronghold it must have been in days gone by. On the saddle, and even higher up the rock, are a number of houses which are still occupied, and the cultivation of vegetables from the water in the many tanks on the hill is a thriving industry.

The place is said to have been originally a stronghold of some Bedars, whose disorderly conduct compelled the Vijayanagar kings to send an officer, named Bhūpati Rāya, to reduce them to submission. He turned them out of the place and ruled it himself, and the hill was called after him Bhūpati-Rāyanikonda, or more shortly Rāyadrug. Later it fell into the hands of the chief of Kundurpi Drug in Anantapur District, and his family built the greater part of the fortifications on the hill, and raised the place to the important position it held in the petty wars of the Deccan. The height of its power was reached in the middle of the eighteenth century. Haidar Alī was friendly to the chief, but his son and successor Tipū treacherously seized the place and confined its owner at Seringapatam. When Tipū was killed in 1799 a member of the chief's family took possession of the fort, but he attempted to excite disturbances and was almost immediately deported to Hyderābād by the Nizām's officers. When Bellary District was ceded to the Company in 1800, he was transferred to Gooty, where he resided on a maintenance allowance as a quasi-state prisoner till his death. Pensions were granted to the members of his family, which several of their descendants continue to draw.

On the hill on which the fort stands are several temples, some ruins of the former chiefs' residences, a Jain temple and some curious Jain figures carved upon the face of the rocks in a place known as Rasā Siddha's hermitage. Rasā Siddha, says local tradition, was a sage who lived in the days when a king named Rājarājendra ruled over Rāyadrug. This king had two wives. The elder of these bore a son who was named Sārangadhara and grew into a very beautiful youth. The younger wife fell in love with him. He rejected her advances, and she took the time-honoured revenge of telling her husband that he had attempted her virtue. The king ordered that his son should be taken to the rock called Sabbal Banda, two miles north of Rāyadrug, and there have his hands and feet cut off. The order was obeyed. That night Rasā Siddha found the prince lying there and, knowing by his powers of second sight that he was innocent, applied magic herbs which made his hands and feet to grow again. The prince presented himself

to his father, who saw from the portent that he must be innocent and punished the wicked wife. The hermitage is now occupied by an ascetic from Northern India, and on Sundays Hindus of all classes, and even Musalmāns, go up the hill to break coco-nuts there. It consists of three cells with cut-stone doorways built among a pile of enormous boulders, picturesquely situated among fine trees. On four of the boulders are carved the Jain figures referred to.

Rāyadrug town contains two or three broad and regular streets, and many narrow and irregular lanes. Its industries include a tannery, the weaving of silk fabrics, and the manufacture of *borugulu*, or rice soaked in salt water and then fried on sand until it swells. Trade is conducted largely with Bellary, but also with Kalyandrug and with the neighbouring villages in Mysore. Now that the railway to Bellary has been completed, that town's share of the commerce will doubtless increase rapidly.

Siruguppa.—Town in the northern corner of the Bellary *tāluk* of Bellary District, Madras, situated in 15° 39′ N. and 76° 53′ E. It is the head-quarters of a deputy-*tahsīldār*. Population (1901), 5,805. It stands on a narrow branch of the Tungabhadra, which splits just above it into two channels, enclosing between them the island of Desanūru, 6 miles long. The picturesque reach which separates the town from the island is flanked for about a quarter of a mile by the old Siruguppa fort, while the other bank is fringed with the coco-nut palms of the island. The name Siruguppa means 'pile of wealth,' and is well earned by the striking contrast which its rich 'wet' land, watered by two branches of a channel from the river, affords to the 'dry' land around it. These fields are the most fertile in the District. From them are sent to Bellary and Adoni large quantities of rice, plantains, coco-nuts, sweet potatoes, pineapples, and garlic. The town boasts a larger revenue assessment (Rs. 26,000) than any other in the District. It has not, however, advanced rapidly in size. It lost 9 per cent. of its population in the 1877 famine, and during the thirty years between 1871 and 1901 the inhabitants increased by only 5 per cent.

Ujjini.—Village on the southern frontier of the Kūdligi *tāluk* of Bellary District, Madras, situated in 14° 43′ N. and 76° 18′ E. Population (1901), 2,975. The place is held in great reverence by Lingāyats, as it is the seat of one of the five Simhāsanaswāmis, or religious heads of the sect. The *math* of this *gurū* is the most notable building in the village, and

contains within its walls a temple to Siddheswaraswāmi. A carved lotus on the ceiling of one of the compartments of the *mantapam* in front of the shrine is famous in this part of the country. The tower over the shrine itself is so blackened with the many oily oblations which have been poured over it that the ornament on it is almost obliterated.

Vijayanagar.—Vijayanagar, 'the city of victory,' the capital of the empire of that name, stood on the bank of the Tungabhadra, in the present Hospet *tāluk* of Bellary District, Madras, situated in 15° 20′ N. and 76° 28′ E. The only part of it now inhabited is the tiny hamlet of Hampi, and the remains of the great city are often called 'the Hampi ruins.' They cover 9 square miles, but the fortifications and outposts of the city included a far larger area. The entrance from the south-west, for example, was at one time a fortified gate on the huge embankment which stands at the foot of the hills 2 miles beyond Hospet, 9 miles as the crow flies from the centre of the ruins.

The site of the old city is a strangely wild place to have been the birthplace and capital of an empire. The whole area is dotted with little rocky hills; and immediately to the north the wide and rapid Tungabhadra hurries along a boulder-strewn channel down rapids and through narrow gorges. The hills are of granite, weathered to every shade of colour from a bluish-grey to a rich golden brown, and have hardly a shrub or a blade of grass upon them. The alternate burning days and chilly nights of the Deccan climate have seamed and split in every direction the huge masses of solid rock of which they originally consisted; while the earthquakes of remote ages and the slower processes of denudation have torn from their flanks the enormous boulders which were thus formed, and have piled these up about their sides in the most fantastic confusion or flung them headlong into the valleys below. Many of them must weigh hundreds of tons. In places cyclopean masses stand delicately poised one upon another at the most hazardous angles, in others they form impassable screes, while those which have yet to fall often stand boldly out from the hills as single giant tors, or range themselves in castellations and embattlements, which, but for their vastness, would seem to be the work of man rather than of nature. As one writer has described it:—

'Far as the eye can reach for 10 square miles there is nothing between heaven and earth but boulders; the earth is paved with them, the sky is pierced with them . . . literally in

thousands of all sizes . . . heaps upon heaps, in one instance 250 feet in height.'

Up the sides of these hills and along the low ground between them, often in several lines one behind the other, run the fortified enclosing walls of the old city, and in the valleys among them stand its deserted streets and ruined palaces and temples. The lowest ground of all is covered with fields of tall *cholam* or of green and golden rice watered by the channel which one of the kings led from the Tungabhadra to supply the people, and irrigate the orchards and rose-gardens, of his capital. To know Vijayanagar at its best, the visitor should climb the slippery steps leading to the little shrine on the top of the hill called Matanga Parvatam, and watch the evening light fade across the ruins; and if the fates are kind and grant him the added glory of a Deccan sunset, he will surely return content.

The city was founded in 1336, and its importance in South Indian history lies in the fact that it was a stronghold of the Hindus, and that for two and a half centuries it successfully opposed the southward movement of the Musalmān arms. It grew with amazing rapidity from the fortress of a petty chief to be the capital of an empire which embraced all the Madras Presidency south of the Kistna river. At the height of its prosperity, which was reached under its famous king Krishna Deva Rāya, a contemporary of Henry VIII of England, it was known throughout India and even in Europe. Many foreigners visited it, and several glowing descriptions of its glories have come down to us. These and a history of the dynasty will be found in Mr. R. Sewell's *A Forgotten Empire* (1900). Krishna Deva's successor Achyuta (1530–42) was a weak yet tyrannical ruler, and his conduct and mode of government ruined the Hindu cause in Southern India. His nobles rebelled against his authority, and all real power fell into the hands of three brothers. The chief of these was Rāma Rājā, who did much to repair the blunders of Achyuta and restore the prestige of the empire; but his haughty treatment of the hereditary foes of Vijayanagar, the Musalmān Sultāns of the Deccan, goaded them at length to forget their mutual animosities and combine against him. The decisive battle of Tālikotā was fought in 1565, when Rāma Rājā and one of his brothers were slain, and the Hindus were utterly defeated. The next day the puppet king fled from the city to PENUKONDA in Anantapur District, with 550 elephants laden with treasure valued at more than 100 million sterling. The third day the victorious Musalmāns arrived at Vijayanagar, and for five

months they employed themselves in deliberately destroying everything destructible within the city. Two years later Cesare de' Federici, an Italian traveller, visited the place and wrote of it that 'the houses stand still, but emptie, and there is dwelling in them nothing, as is reported, but Tygres and other wild beasts.' The representatives of the old dynasty maintained a hollow state for many years at PENUKONDA and CHANDRAGIRI; but their feudatories renounced their allegiance, the Musalmāns captured their strongholds one after the other, and eventually they lost all semblance of power. The existing representative of the line is the Rājā of Anegundi in the Nizām's Dominions, who possesses a small estate and draws a pension from the British Government.

The best base from which to see what remains of the ruined city of Vijayanagar to-day, three centuries and more since its destruction, is Kāmalāpuram, 7 miles from Hospet railway station, where a deserted temple converted into a dwelling by a former Collector is now used as a travellers' bungalow. A detailed account of the chief of the many buildings in the ruins will be found in the *Gazetteer* of Bellary District (1904). Space prevents allusion here to more than one or two.

The palace enclosure, which was doubtless originally the most splendid part of the city, seems to have been the special object of the destructive energy of the Musalmāns, and in much of it scarcely one stone stands upon another. The Queens' Bath, the so-called Council Chamber, and the Elephant Stables remain; but the most striking building is the temple of Hazāra Rāmaswāmi, or 'the thousand Rāmas,' which is supposed to have been the private place of worship of the kings. The courtyard walls of this are covered with sculptures depicting scenes from the Rāmāyana, carved with great life and spirit. Nearer the river is a huge statue of Narasimha, the man-lion incarnation of Vishnu, 22 feet high, which is cut from a single boulder and yet finished with the greatest delicacy. The Musalmāns succeeded in shattering this huge statue—probably by lighting fires round and upon it. On the river bank is the great temple of Pampāpati, the tall tower of which is one of the striking features of the ruins. It was built by Krishna Deva, who did more than any of his line to beautify the capital. Leading up to it is the most perfect of the ruins of the old streets of the city. It is nearly 800 yards long, and many of the houses in it are still standing. It was described by one of the old chroniclers as being in his time a very beautiful street of very beautiful houses with balconies and arcades. Near the

farther end is the deep gorge which the Tungabhadra has cut among the rocky hills. In flood-time this is an impressive sight. Farther along the river bank is the great temple of Vitthalaswāmi, one of the most notable of all the ruins. Krishna Deva began it and his successors continued the work, but the fall of the city prevented its completion. The size of the blocks of stone used in its construction is even more enormous than elsewhere, and the sculpture upon them surpasses that in any part of the city. Inside the courtyard is a handsome car for the god's processions, made of stone instead of wood. On either side of the court stand two *mantapams*, which in any other situation would be considered notable instances of rich design and patient, careful workmanship. But they are entirely dwarfed by the building which is the glory of the temple and of the ruins—the great hall which stands in front of the shrine. This rests on a richly sculptured basement, and its roof is supported by huge masses of granite, 15 feet high, each consisting of a central pillar surrounded by detached shafts, figures mounted on demons, and other ornament, all cut from a single block of stone. These are surmounted by an elaborate and equally massive cornice; and the whole is carved with a boldness and expression of power nowhere surpassed in the buildings of its class, showing the extreme limit in florid magnificence to which the style advanced. This beautiful building has been grievously injured by the destroyers of the city. Several of the carved pillars have been attacked with such fury that they are hardly more than shapeless blocks of stone, and a large portion of the centre has been destroyed utterly.

If local tradition be credited, there was a town on this site many centuries before the kings of Vijayanagar selected it for their capital. Some of the most dramatic scenes in the great epic of the Rāmāyana occurred at a place called in the poem Kishkindha, and it is asserted by the local Brāhmans that this Kishkindha was close to Hampi. Here Rāma first received definite news of his wife Sītā, Hanumān, the minister of the king of the place, having seen her as she was being carried through the air by the ravisher Rāvana, the ten-headed king of Ceylon. Here the forces were collected for the attack on that island, and here Hanumān marshalled the monkey host which built the bridge across the strait by which they all crossed. The place is accordingly held holy by Hindus, and an annual festival, which was once attended by very large crowds but has now declined in importance, is held at the Pampāpati temple. The ruins are now specially conserved by Government to pro-

tect them from destruction by seekers for hidden treasure and other vandals, and a survey on a large scale is being carried out.

Yemmiganūr.—Town in the Adoni *tāluk* of Bellary District, Madras, situated in 15° 47′ N. and 77° 29′ E., 18 miles north-east of Adoni. Population (1901), 13,890. It is the head-quarters of a deputy-*tahsīldār*, is the fourth most populous place in the District, and during the last thirty years has grown faster than any of the other large towns, its population having increased by as much as 89 per cent. The chief industry is the weaving of cotton and mixed silk and cotton cloths for women. It is said that at one time the industry had almost died out, but that it was revived by the efforts of Mr. F. W. Robertson, Collector of the District from 1824 to 1838, who among other measures brought over to the place a number of weavers from the Nizām's Dominions. The Yemmiganūr cloths are now much esteemed and are exported as far as South Kanara.

ANANTAPUR DISTRICT

Boundaries, configuration, and hill and river systems.

Anantapur District (*Anantapuram*).—The central of the four Ceded Districts in the Madras Presidency, lying between 13° 41′ and 15° 14′ N. and 76° 49′ and 78° 9′ E., with an area of 5,557 square miles. It is bounded on the north by Bellary and Kurnool Districts; on the west by Bellary and the State of Mysore; on the south by the same State; and on the east by Cuddapah District.

Anantapur forms part of the northern extremity of the Mysore plateau and slopes from south to north. In the south the country has an elevation of about 2,200 feet, which gradually decreases to about 1,000 feet at Gooty in the north and 900 feet at Tādpatri in the north-east. The eastern side of the District, towards Cuddapah, is hilly, the Erramalas or Errakondas ('red hills') flanking that frontier in the north and other detached hills breaking it farther south. The north-eastern portion is for the most part an open plain of black cotton soil, surrounded by ridges of the Errakonda range and containing long valleys running up into it. Excluding this and the western portion of the Gooty *tāluk*, which forms part of the Bellary cotton soil plain, the general aspect of the District is a barren, treeless, undulating plain of red soil, broken by long ridges of almost equally barren and treeless hills. In the bottoms between the ridges are occasional groves; but the uplands are extraordinarily bare, and even on the hills the area of forest is small and none of it of any density. In the south, the Penukonda *tāluk* is very hilly and much of it is consequently unfit for cultivation; Hindupur is for the most part flat; and Madakasīra is hilly and rocky towards the south, but to the west more level. Except in the northern parts of the District, where there is much cotton soil, the land is generally extremely poor and infertile, formed from the granitoid rocks on which it lies; but in Madakasīra it is richer and, aided by a better supply of water, is more productive. This *tāluk* has long been known as the garden of the District.

Through the Tādpatri *tāluk* run the low Muchukota hills. In other parts of the District granite occurs in clustered and detached dome-shaped masses, often of great boldness and beauty. The principal clusters are those at Pālasamudram

and Penukonda. The highest point in the latter is 3,091 feet above the sea. Nearly the whole of the District is drained by the PENNER, which enters it from the south and, after a course of about 80 miles nearly due north, turns suddenly eastwards near Pennahobilam, and about 50 miles farther on passes into Cuddapah. The Chitrāvati river enters the District in its south-east corner and flows northwards. After feeding the great tanks at Bukkapatnam and Dharmavaram, it turns to the north-east and leaves the District in the Tādpatri *tāluk*, falling soon afterwards into the Penner. A small portion of the Madakasīra and Kalyandrug *tāluks* is drained by the Hagari northwards into the Tungabhadra.

Geology. Only the northern and eastern parts of the District have been examined by the Geological Survey, and of the remainder it is only known that it consists of crystalline rocks of Archaean character. In the north-western corner a very narrow band of Dhārwār rock enters from Bellary District, being an extension of the Penner-Hagari band of that system. It runs nearly south-east for 24 miles to its crossing over the Penner river, when it trends south and south by west for about 22 miles. Beyond this point it was not mapped, the survey being left unfinished. It probably dies out a few miles farther south. It contains none of the hematites which are usually found in rocks of this class. The north-eastern corner of the District is occupied by deposits of the Cuddapah system, which continue northward into Kurnool District. The Archaean gneissose rocks show considerable variety, but are mainly granites. In the northern part a porphyritic syenitic stone forms a number of rocky hills, and a band of the same kind stretches southward down to and beyond the Penner. A very handsome red micaceous granite forms the group of hills near Nāgasamudram in the Gooty *tāluk*. Granite rocks build the bold hills of the District, such as Gampamalla, Singanamalla, Devarakonda (close to Anantapur town), the Kalyandrug group, and the hills south and south-east of Dharmavaram. A remarkable feature of the Archaean region is the large number of dioritic trap dykes which traverse it. The Cuddapah rocks occupying the north-eastern corner of the District are parts of the two lower groups of that system which make a great semicircular band extending north-west and north from Cuddapah District into Kurnool. Of sub-aerial deposits, the only examples calling for notice are the great travertine rocks, fossil waterfalls as they may be well designated, which occur in the upper parts of the Kona-Uppalapādu valley.

Of economically valuable minerals diamonds come first; they occur occasionally on the surface near WAJRAKARŪR, but their source is as yet a mystery. The neck of blue rock at this place bears a strong resemblance to the Kimberley blue clay, but has been shown to be of different origin. Corundum is found in many villages. Steatite of good quality, compact and free of grit, is reported from Sulamarri and Nerijamupalli.

Botany.

The ordinary plants of the District are those of the drought-resisting classes, which will thrive even on barren soils. *Euphorbias*, *Asclepiads*, and cactus abound. The most noticeable trees are the *babūl* and the *margosa*, but tamarinds also do well. All the stony wastes are covered with the golden-flowered *Cassia auriculata*, the bark of which is used for tanning; and among this is often seen the graceful *Cassia fistula*, the Indian laburnum. The *kānuga* (*Pongamia glabra*) is largely grown for its leaves, which make an excellent manure. Date-palms thrive in some of the damper hollows.

Fauna.

The jungles bordering on Cuddapah contain bears, leopards, wild hog, and a few *sāmbar*. Leopards are also found in some of the other hills in the District. Antelope are fairly common in most parts of the low country. Quail, partridge, and hares abound, but the District is too dry to be a favourite haunt of water-fowl.

Climate and temperature.

The climate is indeed one of the driest in all Madras, and, probably in consequence of this, it is very healthy. The hot season begins early in March and ends suddenly with the arrival of the monsoon, usually early in June. Thereafter the climate is more pleasant than in most Districts. The southern *tāluks* of Madakasīra and Hindupur, which slope gradually down from the Mysore plateau, are considerably cooler than the northern part of the District.

Rainfall.

Anantapur does not get the full force of either monsoon, and the rainfall in consequence is often deficient. It is also frequently irregular. The south-west monsoon generally gives showers in June, July, and August, and a good supply in September. The north-east rains bring a good fall in October, but after that the rain is insignificant in quantity until June comes round again. The average for the whole District for the thirty-four years from 1870 to 1903 was 23 inches (one of the lowest figures in the Presidency), the two best months being September and October (5·3 inches and 4·9 inches respectively). The centre of the District (Anantapur, Dharmavaram, and Kalyandrug) is the driest part, the fall there being less than 21 inches on an average; Gooty and Tādpatri get about 23

inches; and in the three southern *tāluks*, where the fall is less scanty than elsewhere, over 24 inches is registered.

With the exception of famine, the District has enjoyed immunity from serious natural calamities. In 1851 a violent storm swept over it and damaged many of the tanks, the ruin of the crops being completed by a heavy fall of rain before the damage was made good. In 1889 another violent storm did considerable damage.

Nothing definite is known of the history of the District until it became part of the empire of Vijayanagar in the middle of the fourteenth century. The strong hill-fortresses of PENUKONDA and GOOTY were two of the most valued possessions of that dynasty; and when the last of its real kings, Rāma Rājā, was killed at the battle of Tālikotā in 1565 by the allied Musalmān Sultāns of the Deccan, the puppet king Sadāsiva fled to the former of these refuges with a few retainers and such treasure as he could carry with him. For some years afterwards it was the home of the fallen dynasty, and it resisted more than one siege by the Muhammadans before it fell into their hands. The Vijayanagar family had meanwhile removed their head-quarters to CHANDRAGIRI in North Arcot. Gooty fell eventually, and it passed from the Musalmāns to the famous Marāthā chief Morāri Rao, whose favourite place of residence it became. During these years of confusion all local power lay in the hands of a number of semi-independent chieftains known to history as *poligārs*. None of these was particularly famous, and all of them were weakened by mutual animosities and by the arbitrary manner in which they were treated by the succession of suzerains to whom they had to submit. Perhaps the most prominent were the Hande family of ANANTAPUR. When Haidar Alī came into power he speedily possessed himself of a tract which lay so near to his own dominions; and the only place that appears to have made any resistance was Gooty, which was bravely held by Morāri Rao in 1775 and yielded only when its garrison ran short of water and were dying of thirst. History.

When Tipū, Haidar's son, was defeated in 1792 by the British, the Nizām, and the Marāthās, and was compelled to make over to the allies a great part of his possessions, the north-eastern corner of Anantapur, consisting of the *tāluks* of Tādpatri and Tādimarri as then constituted, fell to the share of the Nizām. By the partition treaty of 1799, which followed Tipū's death at the storm of Seringapatam, the rest of the District passed to the Nizām; but in 1800 he agreed to cede

to the Company all the territory acquired by him under these two treaties in payment for a subsidiary force to be stationed in his dominions. Anantapur thus became a British possession. The country handed over was known as the Ceded Districts and was at first administered as one unit, Major (afterwards Sir Thomas) Munro being its earliest Collector. Subsequently it was split into two Districts, and the *tāluks* which now make up Anantapur formed part of the Bellary Collectorate. This proved later to be a heavier charge than one Collector could administer efficiently, and in 1882 it was divided into the present Districts of Bellary and Anantapur.

Archaeology. The most interesting antiquities in the District are perhaps the Penukonda and Gooty forts and the buildings which cluster round the former. The temple on the Penner bank at Tādpatri contains some wonderful carvings, and the shrines at Lepākshi and Hemāvati are well known for their sculpture. At this latter place have been discovered some of the oldest inscriptions in the District, relating to an early line of local rulers who were a branch of the Pallavas. Palaeolithic settlements have been found on the top of some of the hills, and here and there are kistvaens erected by other prehistoric people.

The people. The population of Anantapur in 1871 was 741,255; in 1881, 599,889; in 1891, 727,725; and in 1901, 788,254. Like the rest of the Deccan, it suffered very severely in the famine of 1876, and it has only now recovered the population it then lost. Except Madras City and the Nīlgiris, it has fewer inhabitants than any other District; but during the ten years ending 1901, although migration to Mysore was considerable, the rate of increase was above the average for the Presidency. The Tādpatri *tāluk*, however, suffered constantly from cholera during this period and shows a small decline. The District is made up of the eight *tāluks* of which statistical particulars, according to the Census of 1901, are given on the opposite page. The head-quarters of these are at the towns and villages from which they are respectively named. Like Cuddapah and the Nīlgiris, Anantapur has no town of as many as 20,000 inhabitants. Its only municipality is the head-quarters, Anantapur (population, 7,938), which is the smallest municipal town in the Presidency except Kodaikānal. By religion, 726,352, or 92 per cent., of the people are Hindus or Animists. Musalmāns are fewer than in the other Deccan Districts of Madras, numbering 58,917, or 7 per cent. Christians number only 2,675, or three in every 1,000 of the population, being less than in any other District. The same curious deficiency of

females occurs here as in the other Deccan Districts. In Madakasīra, the *tāluk* which juts out into Mysore territory, Kanarese is chiefly spoken; but elsewhere Telugu is the prevailing vernacular, being the home-speech of 80 per cent. of the population, against 11 per cent. who speak Kanarese, and 6 per cent. who speak Hindustāni.

Tāluk.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Gooty	1,054	3	142	156,155	148	+ 9·3	7,317
Tādpatri	641	2	93	109,421	171	− 2·9	5,113
Anantapur	867	1	107	108,731	125	+ 4·7	4,047
Kalyandrug	817	1	70	76,977	94	+ 5·8	2,730
Penukonda	677	1	96	92,482	137	+ 14·0	3,368
Dharmavaram	632	1	48	70,943	112	+ 8·1	2,749
Madakasīra	443	1	54	81,457	184	+ 19·8	3,114
Hindupur	426	1	74	92,088	216	+ 13·9	4,269
District total	5,557	11	684	788,254	142	+ 8·3	32,707

Their castes and occupations.

Except 14,000 of the wandering tribes of Yerukalas, Kuravans (Korachas), and Lambādis, and 5,000 Marāthās, nearly all the people belong to the ordinary Telugu or Kanarese castes. Kāpus (cultivators) and Boyas (*shikāris* and cultivators) are the most numerous Telugu communities, aggregating respectively 118,000 and 109,000; while of the 71,000 Kanarese people 57,000 belong to the caste of Kurubas, who are shepherds and weavers of goats'-hair blankets. The only caste found in greater strength in Anantapur than elsewhere is the Sādars, a small body of agriculturists said to have been originally Jains, but now nearly all Lingāyats by sect. An unusual proportion of the people live by their flocks and herds, by weaving and by leather-work, but otherwise the occupations of the people of Anantapur differ little from the normal. Agriculture, as usual, enormously preponderates.

Christian missions.

In 1901 the native Christians numbered 2,173, including 950 Roman Catholics and 832 adherents of the London Mission, the remainder being distributed in small numbers among other denominations. As far back as the beginning of the eighteenth century a flourishing Roman Catholic mission existed at Krishnāpuram in the Dharmavaram *tāluk*. There are chapels now at Gooty and Paramatiyaleru (Anantapur *tāluk*), the priests being appointed from Bellary. Of the two Protestant missions, the London Mission has stations at Anantapur (1890)

and Gooty (1881). The Ceylon and Indian General Mission began work at Hindupur in 1895. Subsequently it established a station at Penukonda, and it now has a missionary at Madakasīra as well.

General agricultural conditions. Except in the northern part of the District the soil is generally miserably poor and thin. Even the black cotton soil of the two northern *tāluks* is inferior to that of Bellary and Kurnool, and wide areas are very alkaline and bear poor crops. The red earth varies from a dark-red loam in the bottoms to a very stony soil in the upland plains. Land of this class comprises more than three-fourths of the assessed 'dry' area of the District, being most extensive in the central *tāluks* of Anantapur, Dharmavaram, and Kalyandrug. Agricultural practice varies with the character of the rainfall and with the soil. The sowings are generally later on the cotton soil in the two northern *tāluks* than elsewhere, as this land requires a thorough soaking before the seed is put down; in the District as a whole nearly two-thirds of the sowings has usually been effected by September. Agricultural implements are generally of a primitive kind, but some iron ploughs have been introduced in the two northern *tāluks* of Gooty and Tādpatri on the black cotton soil to rid this of the deep-rooted grasses to which it is a prey. The bamboo-drill and the bullock-hoe are used, as in Bellary, and are greatly superior to the system of broad-cast sowing and hand-weeding which prevails in the Tamil Districts.

Chief agricultural statistics and principal crops. The District contains no *zamīndāris*, but as much as 16 per cent. is *inām* land. The area for which particulars are available is 5,536 square miles, as shown below for 1903-4:—

Tāluk.	Area shown in accounts.	Forests.	Cultivable waste.	Cultivated.	Irrigated.
Gooty	1,055	94	95	732	21
Tādpatri	639	79	29	404	30
Anantapur	865	48	135	556	44
Kalyandrug	816	44	229	469	23
Penukonda	670	106	93	299	33
Dharmavaram	622	47	156	335	26
Madakasīra	443	45	107	233	33
Hindupur	426	53	82	240	44
District total	5,536	516	926	3,268	254

It will be seen that as much as one-sixth appears as cultivable waste; but much of this is poor land outside the margin of cultivation, and the room for profitable extension is smaller than these figures would indicate. The food-grains most widely

grown are *korra* (a kind of millet, *Setaria italica*) and *cholam* (*Sorghum vulgare*), the areas under these in 1903–4 being 547 and 500 square miles respectively. They are the staple crops in Gooty, Tādpatri, Anantapur, and Kalyandrug. Rice is raised on considerable areas in Dharmavaram and Penukonda. In the south (Hindupur and Madakasīra) *rāgi* (*Eleusine coracana*) is the staple food of the people and is very extensively cultivated either with or without irrigation. Of other crops, the most important are cotton in the northern *tāluks* of Gooty and Tādpatri, and horse-gram throughout the rest of the District. In 1903–4 the latter was sown on as much as 462 square miles, a fact which points to the precarious nature of the rainfall and the poverty of the soil, this being essentially the crop of barren areas, being able to flourish on the poorest land and to subsist almost entirely on dew if only it gets one shower when young. Castor is also extensively grown, and this is similarly a crop which can be raised on poor land.

Improvements in agricultural practice.

In 1871–2 the total holdings in the District covered 1,076,000 acres. In the great famine of 1876–8 this area greatly decreased, and the decline continued for several years afterwards. In 1881–2 the holdings covered only 899,000 acres. The area then began to expand, and during the five years 1881–2 to 1885–6 averaged 947,000 acres. In the next five years the average rose to 1,078,000 acres, or slightly more than it had been before the famine. This increase is still continuing. No improvements in agricultural practice can be said to have occurred. The ryots prefer to till large areas in a hasty and casual fashion rather than adopt intensive cultivation on smaller patches, and they are thus entirely at the mercy of the monsoons except where wells exist. Wells are expensive, as the subsoil is usually rocky, but more might be constructed with advantage. During the sixteen years ending with 1904 only 4½ lakhs was advanced under the Land Improvement and Agriculturists Loans Acts.

Cattle and sheep.

There are no local breeds of cattle worthy of mention, as the grazing is too poor to raise good animals. The best stock are imported from Nellore by dealers, who sell them on the instalment system, or are purchased at the big fairs in Mysore. Sheep are plentiful and are mainly bred for their wool, which is woven into rough blankets in many villages. A sheep is calculated to yield about 4 lb. of wool per annum. There are also large flocks of goats. Working cattle are fed on *cholam* stalks and *rāgi* straw. The others and the sheep and goats live on what they can pick up on waste land.,

Irrigation. Of the total area under cultivation in 1903-4, 254 square miles, or 8 per cent., were irrigated. Of this, 127 square miles (50 per cent.) were supplied from tanks, and 70 square miles (28 per cent.) from wells. Government channels watered only 50 square miles or 20 per cent. The tanks are nearly all rain-fed and are precarious sources. In bad years the area irrigated by them is much less than the figure above given. Indeed, only 3 per cent. of the area under cultivation can be said to be protected in all seasons. The largest tanks are those at Bukkapatnam and Dharmavaram, which are filled by the Chitrāvati. The wells number nearly 20,000, but many of them fail in bad years. There are no large irrigation channels, and the area watered from Government channels is served by a number of small cuts from the Penner and Chitrāvati rivers, none of which is supplied with dams or sluices.

Forests. The forests of the District cover 516 square miles, or 9 per cent. of the total area. In character they resemble those of Bellary and the western *tāluks* of Cuddapah, containing a poor and stunted growth. The chief Reserves lie in the Muchukota range in Tādpatri, in the hills in the north which run down from the Errakondas of Kurnool District, and in the isolated ranges in the Penukonda and Hindupur *tāluks*. There are few Reserves in the low country, though some areas containing date and palmyra palms have been enclosed and protected. The forests contain some teak and bamboo and also satin-wood (*Chloroxylon Swietenia*), but the characteristic tree in the best Reserves is the *yepi* (*Hardwickia binata*). *Anogeissus latifolia* and other deciduous trees are also found; and the trees which are likely to be of the most practical use are the *neredi* (*Dolichandrone crispa*) and *chigara* (*Albizzia amara*), the former for small timber and the latter for fuel. Regeneration in the forests is so slow that in the recently sanctioned working-plans provision is made for sowing the more barren areas with seeds of trees and shrubs which are likely to grow well in them. The head-quarters of the District Forest officer are at Anantapur, and those of his range officers at Tādpatri, Pāmidi, Bukkapatnam, Madakasīra, and Kalyandrug.

Minerals. Except building-stones, the District contains few minerals. Two companies have recently explored the diamond mines at Wajrakarūr, in the Gooty *tāluk*, but all work has now ceased. Corundum is mined spasmodically on a small scale by the natives, and iron is smelted from iron-sand in one or two places. Limestone found near Rāyalcheruvu in the Tādpatri *tāluk* is worked into various kinds of ornamental vessels.

The most important industries in the District are cotton- and silk-weaving. The former consists of the manufacture of the coarse white sheeting which the ordinary ryot wears, and of the coloured cloths used by the women. The silk-weaving is chiefly done at Tādpatri, Dharmavaram, and Uravakonda. At Pāmidi and Guttūru hand-printed chintzes, palampores, &c., are made and exported in large quantities to Rangoon. Woollen blankets are largely woven in the Kalyandrug and Madakasīra *tāluks*. Arts and manufactures.

There are three cotton-cleaning and pressing factories in the District: namely, at Timmancherla, Guntakal, and Tādpatri. They are all old-established concerns, and the pressing in them is done by steam. In 1903 they employed about 280 hands. Rough paper is made at Nyāmaddala in the Dharmavaram *tāluk*. The manufacture of glass bangles from the alkaline earths which are found in many places used to be a thriving industry, but has declined since fuel became difficult to get. In 1902 the Indian Aloe Fibre Company began operations at Somandepalli in the Penukonda *tāluk* with a nominal capital of 4 lakhs. Its decorticating machine at that place turns out from 9 to 12 tons of fibre monthly. Another machine is now working at Rāmapuram in the Kalyandrug *tāluk*. These use such aloes as can be procured locally. The Company has, however, started an aloe plantation of its own near Somandepalli, and hopes in this way to overcome some of the difficulties of the position.

The chief exports of the District are cotton from the northern *tāluks*, and jaggery (coarse sugar), rice, and tanning barks from the south. The chief imports are salt, European piece-goods and twist, and cattle. The cotton goes mainly to Madras and Bombay for the local mills or for export. The most important centre of general commerce is Hindupur, but plague has latterly affected its prosperity. The internal trade of the District is effected by means of weekly markets, which are managed by the local boards. The most important are at Hindupur, Tādpatri, and Yādiki. Commerce.

The north-west line of the Madras Railway enters the District in the north-east, and runs across it in a north-westerly direction to the important junction of Guntakal. It was opened between 1868 and 1870. At Guntakal it joins three branches of the Southern Mahratta Railway, which run respectively to Bellary, Bezwāda, and Bangalore. The last line traverses the whole length of the District from north to south. It was opened in two sections in 1892 and 1893. At Dharmavaram Railways and roads.

it joins the Villupuram-Dharmavaram section of the South Indian Railway, which has a length of 14 miles in the District, opened in 1892.

The total length of metalled roads is 251 miles, and of unmetalled roads 508 miles. All of these are maintained by the local boards. The length of avenues of trees is 319 miles. The most important line is the main road from Bangalore to Secunderābād, which enters the District in the south near Kodikonda, runs through it almost due north, and leaves it near Gooty. On the whole the District is well supplied with roads of different kinds; but the poverty of the District and *tāluk* boards make it impossible for them to maintain all the lines efficiently, and the condition of many of them leaves much to be desired.

Famine.

The District has suffered constantly from famines, owing to the lightness of the rainfall. The earliest distress on record is that of 1792-3; in 1803 there was scarcity amounting to famine; in 1824 famine was anticipated and relief works started; in 1832-3 both monsoons failed, and the year was the worst on record up to that time; 1838 was almost a famine year; in 1843 the rainfall was small and unseasonable; in 1844 both monsoons failed, and in 1845 the seasons were again very bad; 1854 was a famine year; in 1865 distress was anticipated, and was followed by famine in 1866; from 1876 to 1878 the great famine raged; in 1884 relief works had again to be started; and in 1891-2 the District narrowly escaped from severe distress. There was famine again in 1896-7, and scarcity in the northern *tāluks* in 1900-1. In the famine of 1876-8, 137,347 persons were at one time in receipt of relief—more than 18 per cent. of the total population. It has already been seen that it was twenty-five years before the District recovered the population it lost during that visitation. In the famine of 1896-7 the number of persons on relief works rose to 70,088, while 14,805 were in receipt of gratuitous relief.

District subdivisions and staff.

For general administrative purposes the District is grouped into three subdivisions, the officers in charge of which are usually a Covenanted Civilian and two Deputy-Collectors recruited in India. The subdivisions are Penukonda, comprising the Dharmavaram, Penukonda, Hindupur, and Madakasīra *tāluks*; Gooty, which includes Gooty and Tādpatri; and Anantapur, consisting of the Anantapur and Kalyandrug *tāluks*. A *tahsīldār* is stationed at the head-quarters of each *tāluk*, and a stationary sub-magistrate at Gooty, Tādpatri,

Anantapur, and Penukonda, besides deputy-*tahsildārs* at Yādiki and Uravakonda. The superior staff of the District includes a District Forest officer. For registration, public works, and *ābkāri*, the District forms part of Bellary.

Civil justice and crime.

Civil justice is administered by two District Munsifs, at Gooty and Penukonda. Appeals from the former lie to the District Judge of Kurnool, and from the latter to the District Judge at Bellary. The Court of Sessions at Kurnool hears the sessions cases from the Gooty and Tādpatri *tāluks*, and the Bellary Court those from the other *tāluks*. Murders, dacoities, and robberies are not infrequent, especially in the northern *tāluks* of Gooty and Tādpatri, where factions are very common. In the east of Penukonda *tāluk*, also, there is a turbulent element in the population. On the whole, however, crime is light. The most criminal classes are the gangs of Korachas, Yerukalas, and Oddes, who commit most of the dacoities, robberies, and thefts. Some of them are under special police supervision.

Land revenue administration.

Nothing is known of the land revenue under the Vijayanagar kings. Tradition says that it was paid in kind in the proportion of half the produce, and that this half was commuted into money at a price unfavourable to the cultivator. Under the Bijāpur Sultāns an attempt was made to fix the rates after a survey, the assessment thus arrived at being known as the *kāmil* assessment. Its avowed principle was an equal division of the crop between the government and the cultivator, the collection being entrusted to *zamīndārs*, *poligārs*, and village headmen. Aurangzeb appears to have adopted the *kāmil* assessment, but cultivation had undoubtedly decreased owing to the depredations of the *poligārs*, and it is unlikely that he ever realized the whole of it. There is no possibility of discovering what the revenue was under the Marāthās. Haidar Alī fixed the assessments, and endeavoured to increase them by the resumption of *ināms* and other grants. Tipū Sultān made further efforts to increase them, but never succeeded in realizing his large demand. After the District was ceded to the Nizām in 1792 the revenue decreased; the country underwent a severe famine in 1792-3, and the people also suffered considerably from the oppressive methods adopted.

When the District was transferred to the Company a new system was introduced. Instead of collecting the revenue by the agency of renters intermediate between the Government and the cultivator, Major (afterwards Sir Thomas) Munro entered into direct engagements with every cultivator on the *ryotwāri*

system. There was some slight opposition at first on the part of the village headmen, as thenceforth their concern with the revenue of their villages was confined to the duty originally assigned to them under the Hindu rulers, of collecting, on behalf of Government, the rent due by the ryots, subject to the control and under the orders of the Company's Collector, and they had little chance of making illicit perquisites. A minute survey and classification of the country was carried out by Munro between 1802 and 1806, and the rates of assessment were based on the result. The Government of India made an effort subsequently to introduce, first a triennial, and then a decennial, lease in place of Munro's *ryotwāri* tenure, the villages being rented out for fixed sums for these periods. Both leases proved disastrous failures, and the *ryotwāri* system was eventually restored in 1818.

A general reduction in Munro's rates was ordered in 1820, but was not effected till 1824. The rates were again lowered in 1859. The District then began to prosper greatly, but the famine of 1876-8 at one stroke reduced it again to poverty. In 1878 a new survey was begun which was completed in 1896. A resettlement was undertaken in 1890 and finished in 1897. The survey discovered an excess of 6 per cent. in the area of the holdings over the amount shown in the accounts, and the settlement enhanced the total revenue by Rs. 44,000, or 5 per cent. The average extent of a holding is as large as 13 acres. The rates in force in the two northern *tāluks* of Gooty and Tādpatri, which are more fertile than the others, differ from those obtaining elsewhere. The average assessment on 'wet' land there is Rs. 4-6-8 per acre (maximum, Rs. 9; minimum, R. 1), and on 'dry' land R. 0-11-9 (maximum, Rs. 2-8-0; minimum, 2 annas). Elsewhere the maximum 'wet' and 'dry' assessments are Rs. 8-8 and Rs. 2, and the minimum R. 1 and 2 annas respectively. The revenue from land and the total revenue in recent years are given below, in thousands of rupees:—

	1890-1.	1900-1.	1903-4.
Land revenue . .	10,09	13,39	13,93
Total revenue . .	16,24	21,74	21,50

Local boards.

The only municipality in the District is that of Anantapur. Outside it, local affairs are managed by the District board and the three *tāluk* boards of Gooty, Anantapur, and Penukonda, the areas of which correspond with the subdivisions of the same

names. The total expenditure of these boards in 1903–4 was 1½ lakhs, the principal items of outlay being roads, medical institutions, sanitation, and education. Their income is mainly derived from the land cess. There are eleven Union *panchāyats*, established under (Madras) Act V of 1884, in the larger villages.

The police are controlled by a District Superintendent, stationed at Anantapur. There are 40 police stations; and the force numbers 702 constables and 60 reserve police, with 11 inspectors. The rural police consist of 811 men. The District contains no Central or District jail, convicts being sent to the jail at Bellary. Sub-jails, at the head-quarters of the eight *tahsīls*, have accommodation for 114 prisoners. Police and jails.

At the Census of 1901 Anantapur stood last but two among the twenty-two Districts of the Presidency as regards the literacy of its people. The number able to read and write was only 4 per cent. (7·7 males and 0·4 females). Tādpatri is the best-educated *tāluk*, followed closely by Hindupur. Dharmavaram, Anantapur, and Kalyandrug (in this order) are the least enlightened. The number of pupils of both sexes under instruction in 1890–1 was 8,024; in 1900–1, 13,429; and in 1903–4, 13,102. In 1904 the District contained 597 educational institutions of all kinds, of which 540 were classed as public and 57 as private. Of the former, 9 were managed by the Educational department, 50 by local boards, and 3 by the Anantapur municipality, while 218 were aided from public funds, and 260 were unaided but conformed to the rules of the department. They included 530 primary, 8 secondary, and 2 training schools. The total number of female pupils was 1,260. The private schools, which numbered 57, gave instruction to 656 boys and 20 girls. There are no colleges in the District. The two training schools are for masters, one maintained by Government and the other by the London Mission. A very large majority of the boys and girls under instruction are in primary classes, and the number of girls beyond that stage is extremely small. Of the male population of school-going age in 1903–4, 18 per cent. were in the primary stage; of the female population of the same age, 2 per cent. Among Muhammadans the corresponding percentages were 40 and 4. About 300 Panchama pupils were under instruction in the twenty-nine schools specially maintained for those classes. The total expenditure on education in 1903–4 was Rs. 89,000, of which Rs. 33,500 was derived from fees. Of the total, Rs. 68,000 was spent on primary instruction. Education.

Hospitals and dispensaries. At the end of 1903 there were five hospitals and seven dispensaries in the District. The hospital at Anantapur town is supported by the municipality, and the other institutions from Local funds. Together, they contain accommodation for 46 in-patients. In 1903 the number of cases treated was 101,000, of whom 600 were in-patients, and 2,600 operations were performed. The total expenditure was Rs. 19,000.

Vaccination. During 1903-4 the number of persons successfully vaccinated was 30 per 1,000 of the population, the same as the mean for the Presidency. Vaccination is compulsory in the municipality of Anantapur and in all the Unions.

[W. Francis, *District Gazetteer*, 1905.]

Gooty Subdivision.—Subdivision of Anantapur District, Madras, consisting of the GOOTY and TĀDPATRI *tāluks*.

Gooty Tāluk.—Northern *tāluk* of Anantapur District, Madras, lying between 14° 47′ and 15° 14′ N. and 77° 6′ and 77° 49′ E., with an area of 1,054 square miles. The population was 156,155 in 1901, compared with 142,917 in 1891. There are 142 villages and three towns: GOOTY (population, 9,682), the head-quarters of the *tāluk* and subdivision, famous for its ancient rock-fortress; URAVAKONDA (9,385), the head-quarters of the deputy-*tahsīldār*; and PĀMIDI (10,657), noted for its hand-printed chintzes. The demand for land revenue and cesses in 1903-4 amounted to Rs. 3,16,000. In the south and west of the *tāluk* are large plains of fertile black cotton soil. A soft limestone is generally found from 5 to 10 feet below this, which is partially soluble in water. Trees planted here grow well for three or four years, but as soon as their roots strike the limestone strata they cease to flourish. In the north and east the soil is red and gravelly; in many places rocky and stony. The Penner is the only river in the *tāluk*. Small channels are dug from it by the villagers and are renewed year by year. The custom is that each ryot contributes a day's labour (personal or hired) towards the clearing of the channels for every acre irrigated from them which he possesses. The tanks in the *tāluk* are insignificant and only two of them supply more than 200 acres each. The principal crops are *cholam* and cotton on the 'dry,' and rice and *rāgi* on the 'wet,' soil.

Tādpatri Tāluk.—North-eastern *tāluk* of Anantapur District, Madras, lying between 14° 32′ and 15° 11′ N. and 77° 45′ and 78° 9′ E., with an area of 641 square miles. The population in 1901 was 109,421, compared with 112,656 in 1891. The decrease is due to repeated visitations of cholera during the decade. There are 93 villages and two towns in the *tāluk*:

Tādpatri (population, 10,859), on the Penner river, the head-quarters; and Yādiki (7,389), where there is a deputy-*tahsīldār*. The demand for land revenue and cesses in 1903–4 amounted to Rs. 2,28,000. The country is flat, except on the eastern boundary, where the low range of the Errakonda Hills separates it from Cuddapah and Kurnool, and on the western frontier, where another range divides it from the rest of the District. The Penner flows through the centre of the central plain thus formed, and on either side of it stretch wide sheets of black cotton soil, the most fertile in the District. There is hardly any red earth in the *tāluk*. Cotton is the principal crop; a fine kind of *cholam* is also grown.

Anantapur Subdivision.—Subdivision of Anantapur District, Madras, consisting of the Anantapur and Kalyandrug *tāluks*.

Anantapur Tāluk.—Central *tāluk* in the District of the same name, Madras, lying between 14° 24′ and 14° 55′ N. and 77° 17′ and 77° 59′ E., with an area of 867 square miles. The population in 1901 was 108,731, compared with 103,850 in 1891. Besides the municipality of Anantapur (population, 7,938), the head-quarters of the *tāluk* and also of the District, there are 107 villages. The demand for land revenue and cesses in 1903–4 amounted to Rs. 1,90,000. The *tāluk* is undulating, and the soil for the most part red and gravelly and of the poorest nature. Consequently trees and vegetation are scarce, and the country is barren and desolate looking. In the north, however, some small tracts of black soil are found. The Penner and Chitrāvati form part of the northern and eastern boundaries of the *tāluk*, but their waters are not used for irrigation, and cultivation depends upon the very scanty rainfall. A project for damming the former river has been proposed. The large tank at Anantapur town, which is fed by the Pandameru river, is said to have been constructed in 1364 by Chikkappa Udaiyār, Dīwān to the king of Vijayanagar.

Kalyandrug Tāluk.—Westernmost *tāluk* of Anantapur District, Madras, lying between 14° 14′ and 14° 44′ N. and 76° 51′ and 77° 23′ E., with an area of 817 square miles. The population in 1901 was 76,977, compared with 72,730 in 1891. Originally part of the Dharmavaram *tāluk*, it was separated at the end of 1893. It contains 70 villages and one town, Kalyandrug (population, 8,815), the head-quarters. The demand for land revenue and cesses in 1903–4 amounted to Rs. 1,30,000. No less than 88 per cent. of the 'dry' land pays an assessment of four annas or less per acre. The *tāluk* is rocky and barren,

the soil stony and very poor, and the rainfall less than 21 inches per annum. Consequently it is bare and uninviting, and the density of population is less than 100 to the square mile, being lower than in any *tāluk* in the Presidency except those which are covered with hill and forest. The northern portion has a little black cotton soil and is slightly richer.

Penukonda Subdivision.—Subdivision of Anantapur District, Madras, consisting of the PENUKONDA, DHARMAVARAM, MADAKASĪRA, and HINDUPUR *tāluks*.

Penukonda Tāluk.—Southern *tāluk* of Anantapur District, Madras, lying between 13° 54′ and 14° 22′ N. and 77° 20′ and 78° 2′ E., with an area of 677 square miles. The population in 1901 was 92,482, compared with 81,104 in 1891. The *taluk* contains 96 villages and one town, PENUKONDA ('big hill') (population, 6,806), the head-quarters, situated at the base of a large hill from which it takes its name. It is a place of historical importance, having become the capital of the fallen Vijayanagar monarch after his overthrow in 1565 at the battle of Tālikotā. The demand for land revenue and cesses in 1903-4 amounted to Rs. 1,56,000. It is the most hilly *tāluk* in the District, and much of it is consequently quite unfit for cultivation. There is no black soil, and red and gravelly soils predominate. The unirrigated crops are *cholam* and horse-gram, and the irrigated staples are rice, sugar-cane, and some *rāgi*. The Penner river flows along its western and the Chitrāvati along its eastern boundary. At Bukkapatnam the latter river has been dammed up and a very large tank formed; but the Penner is at present little utilized for irrigation, though a project for damming it has been proposed. Seven other tanks irrigate an area of more than 300 acres each.

Dharmavaram Tāluk.—Central *tāluk* of Anantapur District, Madras, lying between 14° 11′ and 14° 37′ N. and 77° 19′ and 77° 53′ E., with an area of 632 square miles. The population in 1901 was 70,943, compared with 65,629 in 1891. There are 48 villages and one town, DHARMAVARAM (population, 10,658), the head-quarters, and the junction of the Southern Mahratta Railway with the Villupuram-Dharmavaram branch of the South Indian Railway. The demand for land revenue and cesses in 1903-4 amounted to Rs. 1,29,000. The country is hilly on the eastern frontier and on the south and west. The soil is chiefly of poor red and gravelly varieties, and there is little black soil. The rainfall is under 21 inches. The principal crops are consequently horse-gram and millet. *Rāgi*, *cholam*, rice, and castor are also grown to a less extent.

The irrigation works are few and unimportant. The only large tank is that at Dharmavaram, which has been formed by damming up the Chitrāvati river.

Madakasira Tāluk.—South-western *tāluk* of Anantapur District, Madras, lying between 13° 44′ and 14° 12′ N. and 76° 49′ and 77° 26′ E., with an area of 443 square miles. The population in 1901 was 81,457, compared with 67,993 in 1891. There are 54 villages and one town, MADAKASĪRA (population, 10,666), the head-quarters, a place of some historic importance. The demand for land revenue and cesses in 1903–4 amounted to Rs. 1,48,000. In the centre it is hilly and rocky, the two highest peaks being Madakasīra and Ratnagiri, both of which were strongly fortified in days gone by. The eastern part resembles the adjoining portions of the valley of the Penner. The western side, however, is more level and more fertile, and is dotted with woods, groves, and tanks. It is perhaps the most favoured by nature of any portion of the District—standing at a higher elevation, receiving an ampler rainfall, possessing thicker vegetation, having a soil of superior fertility, and maintaining a higher rate of increase in its population. Its natural advantages have led to the *tāluk* as a whole being described, somewhat poetically, as the garden of the District.

Hindupur Tāluk.—Southern *tāluk* of Anantapur District, Madras, lying between 13° 41′ and 14° 8′ N. and 77° 24′ and 77° 55′ E., with an area of 426 square miles. The population in 1901 was 92,088, compared with 80,486 in 1891. There are 74 villages and one town, HINDUPUR (population, 19,575), the head-quarters. The demand for land revenue and cesses in 1903–4 amounted to Rs. 1,92,000. On the east and through the centre run two lines of hills, north and south. Between them is a series of undulating uplands. Both the Penner and Chitrāvati rivers traverse the *tāluk* in the same direction, but neither is much utilized for irrigation. Hindupur, however, receives more rain than its northern neighbours, has a better soil and a considerable number of rain-fed tanks; it is consequently richer, less sparsely peopled, and increasing in population more rapidly than they are.

Anantapur Town.—Head-quarters of the *tāluk*, subdivision, and District of the same name, Madras, situated in 14° 41′ N. and 77° 37′ E., on the Guntakal-Bangalore branch of the Southern Mahratta Railway, 56 miles from Bellary and 216 miles from Madras. Population (1901), 7,938. The town was built in 1364 by Chikkappa Udaiyār, Dīwān of the king of

Vijayanagar, who named it after his wife Ananta. The Hande family of Hanumappa Nāyudu received a grant of the country in the sixteenth century from the rulers of Vijayanagar, and held it for two centuries. In 1757 it was besieged by the Marāthā chief Morāri Rao of Gooty, who was bought off for Rs. 50,000. In 1775 Haidar Alī of Mysore took Gooty and Bellary, and exacted a payment of Rs. 69,000 from the country. This excessive tribute having fallen into arrears, Haidar imprisoned the chief and attached his possessions. The family then fell into obscurity. The old *poligār* died in 1788. Soon after this Tipū, who could spare none of his troops to keep order in distant parts, ordered all the males of the family to be put to death lest they should give trouble, and they were hanged on hooks outside the town. The third son, who had been at Seringapatam, escaped and took refuge with the Rājā of Kālahasti. In 1799 he returned to Anantapur, but soon submitted to the Nizām, who granted him the village of Siddarāmpuram. On his death in 1801 the direct line became extinct.

When the Ceded Districts were handed over to the English in 1800, the first Collector, Major (afterwards Sir Thomas) Munro, chose Anantapur for his residence. His office, known as Munro's Hall, is still shown. In 1840 the head-quarters of the old Bellary District (in which the present Anantapur Collectorate was then included) were moved to Bellary, and Anantapur became the residence of a Sub-Collector. In 1869 the Sub-Collector was removed to Gooty. In 1882, however, the present District of Anantapur was constituted and the place became its chief town. It was made a municipality in 1869. The receipts of the council during the ten years ending 1902–3 averaged Rs. 15,930, and the expenditure Rs. 15,490. In 1903–4 the income was Rs. 17,500, mostly derived from the house and land taxes and school fees, and the expenditure was Rs. 16,000. The native town lies in a cramped and unhealthy situation under the embankment of the great tank of Anantapur, surrounded by 'wet' cultivation. The residences of the European officials are in a pleasanter spot farther west, on higher and drier ground.

Dharmavaram Town.—Head-quarters of the *tāluk* of the same name in Anantapur District, Madras, situated in 14° 25′ N. and 77° 43′ E., at the junction of the Villupuram-Dharmavaram branch of the South Indian Railway with the Guntakal-Bangalore branch of the Southern Mahratta Railway, 73½ miles from Bellary and 200 miles from Madras. Population (1901),

10,658. It is said to have been founded by one Kriyāsakti Udaiyār, and was formerly fortified. It is built on the edge of a beautiful tank of great size, formed by damming up the Chitrāvati river, which irrigates 1,416 acres. It contains a Vaishnava temple of great antiquity in which is a sacred spring of never-failing water. The manufacture of silk and cotton cloths for women is carried on, and there is a market of some importance. The place is known for its gingelly oil, much of which is made by a colony of Tamil oil-pressers.

Gooty Town (*Gutti*).—Head-quarters of the subdivision and *tāluk* of the same name in Anantapur District, Madras, situated in 15° 7′ N. and 77° 39′ E., on the Madras Railway, 30 miles from Anantapur town, 47½ miles from Bellary, and 258 miles from Madras. Population (1901), 9,682.

The centre of the place is its famous old hill-fortress. A roughly circular cluster of steep, bare, rocky hills, each connected with the next by lower spurs, encloses in its midst a considerable area of level ground. Within this enclosure is the original town of Gooty. Round the outside of the cluster of hills runs a strong wall or rampart, built of stone pointed with *chunām*, which is guarded by frequent round towers or bastions. On the north and on the west, where the connecting spurs are lowest, two openings through this wall lead into the town. In former days these were fortified and provided with gates. Two small sally-ports in the wall also lead to paths across the outer circle of hills. The westernmost hill of this circle is a huge, precipitous mass of bare rock, which towers hundreds of feet above all the others. On this is built the citadel. It is approached by a paved path which leads first to an outlying spur of considerable extent, itself strongly fortified, and known formerly as Mar Gooty, then passes through the fortifications on this spur, winds upwards round the steep sides of the great rock above it, and at length reaches the summit of the fortress, 2,105 feet above sea-level and about 1,000 feet above the surrounding country. This rock commands the whole of the other fortifications, and also the town in their centre; it is defended by a series of walls perched one above the other along its precipitous sides and connected with re-entering gateways flanked by bastions, forming a citadel which famine or treachery could alone reduce. It is supplied with water from a number of reservoirs made in the clefts of the rock to catch the rain. One of these is traditionally declared to be connected with a stream at its foot. The fort contains no buildings or remains of architectural interest. On the top

are two erections which were apparently a gymnasium and a powder-magazine; and on the edge of a cliff some 300 feet high stands a small pavilion of polished *chunām*, called Morāri Rao's seat, which commands an excellent view of the town below. Here, it is said, Morāri Rao used to sit and play chess or swing himself, varying the monotony by now and again watching a prisoner hurled from the top of the adjoining rock. Many other buildings are in ruins, and some of these were used by Munro as state prisons for refractory *poligārs*. In 1838 the hill chiefs who had been concerned in the rebellions in Ganjām were confined here. Within Mar Gooty are the barracks at one time occupied by the detachment of native infantry which was posted here when the place was ceded to the Company. The fort and the buildings are on the list of constructions specially maintained by Government.

The old town of Gooty in the hollow within the circle of hills is very crowded and, owing to its situation, is unpleasantly warm in the hot season. Consequently the place is now extending on the level ground to the west of the hills, outside the fortifications. Here are the divisional and *tāluk* offices, the travellers' bungalow, and the buildings belonging to the London Missionary Society. The only public office still within the fort is the District Munsif's court.

At the foot of the path leading to the citadel is the European cemetery. Here rested for a short time the body of Sir Thomas Munro, who died at PATTIKONDA in Kurnool on July 6, 1827, when on a farewell tour, as Governor of the Presidency, through his beloved Ceded Districts. His remains now lie in St. Mary's Church in the fort at Madras, but a cenotaph stands in the Gooty cemetery. At Pattikonda, Government planted a grove and constructed a reservoir to his memory; and at Gooty it built at a cost of Rs. 33,000 the Munro Chattram (in which hangs an engraving of Archer Shee's full-length portrait of Munro now in the Banqueting Hall at Madras), and also the tank facing the hospital and adjoining the road to the station. For the up-keep of these an endowment in land and money of Rs. 2,045 per annum was granted. Part of this was originally expended in feeding travellers in the *chattram*, and part in the maintenance of a dispensary in the veranda. In 1869 the dispensary was removed to the building now occupied by the hospital, which was erected from the endowment, the feeding of travellers was discontinued, and Rs. 1,500 out of the endowment was transferred to the up-keep of the dispensary in its new quarters.

In 1884 the institution was handed over to the management of the *tāluk* board, and it is now known merely as the hospital, few people seeming to remember that it ever had any connexion with the Munro memorials.

Materials for a complete history of the fort are not available. Inscriptions on the rocks on the summit show that it was a place of importance as far back as the eleventh century. It was one of the chief strongholds of the Vijayanagar kings, and the Musalmāns did not succeed in taking it until some years after they had finally defeated that dynasty. About 1746, Morāri Rao, the famous Marāthā warrior whose exploits figure so largely in South Indian history, established himself here, and he repaired its fortifications. In 1775 Haidar Alī of Mysore captured the place after a long siege. The water-supply ran out and the garrison were dying of thirst, and Morāri Rao was obliged to capitulate. Haidar sent him to a prison on the KABBĀL-DURGA hill in Mysore, from which he never emerged again. Haidar and his son Tipū held the fort until 1799, when, on the latter's death at the storm of Seringapatam, it fell to the Nizām. It was captured by Colonel Bowser on the Nizām's behalf in the same year from a rebel who had seized it, and since 1800 it has been a British possession. A garrison of two companies was maintained in it until about 1860.

Guntakal.—Village in the Gooty *tāluk* of Anantapur District, Madras, situated in 15° 9′ N. and 72° 23′ E. Population (1901), 6,059. It is an important railway junction. Here the north-west line of the Madras Railway is joined by the three branches of the Southern Mahratta Railway which lead respectively to Bezwāda, Bangalore, and Bellary. The distance from Guntakal to Bombay is 518 miles, to Madras 276, to Bellary 30, to Bangalore 174, and to Bezwāda 279 miles. A steam cotton press, known as Volkart's United Press, has been erected, but the existence of the junction has done little for the place, and it is not rapidly increasing. On the high ground to the south-west, one of the most dreary spots in all the Presidency, have been discovered several prehistoric implements, &c.

Hindupur Town.—Head-quarters of the *tāluk* of the same name in Anantapur District, Madras, situated in 13° 49′ N. and 77° 29′ E., close to the Penner, and on the branch of the Southern Mahratta Railway which runs from Guntakal to Bangalore, 70 miles south of Anantapur town. Population (1901), 19,575. Hindupur is the largest town in the District

and the centre of the commerce of its southern portion. Tradition says that it was founded by Morāri Rao and called after his father, whose title was Hindu Rao. It does a large and increasing trade in jaggery (coarse sugar), piece-goods, and grain, mostly with Bangalore. Hand-weaving of gunny sacking, common cloth, and blankets is also carried on. Latterly fears of plague have done much to deter traders from visiting it, and its commerce has fallen off.

Kalyandrug Town.—Head-quarters of the *tāluk* of the same name in Anantapur District, Madras, situated in 14° 33′ N. and 77° 6′ E. Population (1901), 8,815. It was formerly a place of some importance containing a District Munsif's court, but now, being off the railway and in the centre of a very barren tract, it is in a decaying state. It lies in a hollow surrounded by hills, two of which are 2,400 feet high. The ruins of an old fort and the buildings connected therewith still stand, but are of no antiquarian interest. On the higher of the two hills above referred to, and in the neighbouring village of Mudigallu, are some hundreds of prehistoric kistvaens. On the hill are also three curious circular mounds of earth, about 3 feet in height and some 10 or 11 yards in diameter. All round them are planted, upright in the earth, slabs of stone of irregular shape which stand from 4 to 5 feet above the ground.

Madakasīra Town.—Head-quarters of the *tāluk* of the same name in Anantapur District, Madras, situated in 13° 56′ N. and 77° 17′ E., 56 miles from Anantapur town. Population (1901), 10,666. The town lies at the foot of a rock, which was once strongly fortified. Tradition says that it was built by the chiefs of Sīra in Mysore. Hīra Udaiyār, the founder of the family, agreed to serve the Vijayanagar government with 1,000 peons, and for their support twelve villages in the Chitaldroog *tāluk* of Mysore were given him. This grant was subsequently greatly augmented. Early in the seventeenth century the Sultān of Bijāpur took many of the chief's possessions, but left to him the two forts of Madakasīra and Ratnagiri. In 1728 the Marāthās captured the former place, and in 1741 the latter was taken by Morāri Rao, who imposed a tribute of Rs. 8,000. In 1762 Haidar Alī of Mysore took Madakasīra, but his troops were ejected two years later by Morāri Rao. Haidar seized it again in 1776, and demanded a tribute of Rs. 15,000. As this was not paid punctually, he sent the chief and his five sons prisoners to Seringapatam. The Musalmāns held the place till 1799, and the country fell under British rule in the following year. The town is now a fairly

important market centre. It is surrounded by groves of coconut and other trees, and much cultivation. Its bazar contains a number of houses faced with the neat verandas, supported on carved and painted pillars, which are a feature of this corner of the District.

Pāmidi.—Town in the Gooty *tāluk* of Anantapur District, Madras, situated in 14° 57′ N. and 77° 36′ E., 14 miles south of Gooty town on the north bank of the Penner river. Population (1901), 10,657. The town is unhealthy, as its situation is low and the neighbourhood is covered with 'wet' crops irrigated from the river. There is a large colony of Marāthā cotton-printers here; and Pāmidi chintzes are well-known throughout the Ceded Districts, and are exported in large quantities to other parts of the peninsula and to Burma. The printers are Rangāris by caste; and their handiwork, if coarse in execution, is most effective, owing to the boldness of its design and the richness of the deep-red colour (a vegetable dye) which is the foundation of almost all the patterns.

Pennahobilam.—Village in the Gooty *tāluk* of Anantapur District, Madras, situated in 14° 52′ N. and 77° 19′ E. Population (1901), only three persons. It stands on the bank of the Penner river just where this turns eastwards for the first time. The channel at this point is narrow and rocky. The village is a sacred place of pilgrimage, as it contains a famous temple to Narasimha, the man-lion incarnation of Vishnu. This building is not architecturally remarkable, much of it being made only of plaster; but it is most picturesquely situated on rising ground among fine trees, under which stand a crowd of buildings for the accommodation of pilgrims.

Penukonda Town.—Head-quarters of the subdivision and *tāluk* of the same name in Anantapur District, Madras, situated in 14° 5′ N. and 77° 36′ E. Population (1901), 6,806. It is picturesquely placed at the foot of a steep, rugged, and strongly fortified hill over 3,000 feet in height, on the edge of an uneven plain which is flanked and crossed by smaller elevations of manifold shapes and sizes. From the hill, and connected with it at both ends, a semicircular line of massive fortifications stretches out for some distance into the plain, and is washed on its southern side by a considerable tank. Partly within and partly outside this line is the present town; and the remains of the ancient buildings on the lower ground, the towers and *mantapams* on the slopes of the hill, and the trees and the green crops of the cultivated patches combine to make a very pleasant picture, while an air of departed greatness is

afforded by the numerous ruins and fragments of carved stone which lie about on every side. The view of the town and its surroundings from the top of the hill is well worth the climb. According to tradition, it was founded by one Kriyāsakti Udaiyār. The earliest inscription, on the northern gate of the fort, says that king Bukka I of Vijayanagar entrusted the province of Penukonda to his son Vīra Virupanna Udaiyār, in whose time the fort was built. Thus at the very beginning of the rule of the Vijayanagar dynasty the place was the residence of one of its princes. It evidently continued for many years to be one of the chief strongholds of the line; and Krishna Deva, the greatest of its kings, is declared to have made it his residence for a period. When the Vijayanagar power was overthrown by the Musalmāns at the battle of Tālikotā, it was to Penukonda that the king fled, taking with him a few followers and the treasures of his palace. The place then became the head-quarters of what remained of the fallen empire. In 1585 the king moved to Chandragiri in North Arcot, and then Penukonda was ruled by local governors. In 1577 the Sultān of Bijāpur blockaded it closely, but a part of his troops were bought off and the siege failed. In 1589 the Sultān of Golconda made another attempt on it, but it was most heroically defended by Jagadeva Rāya, and the Musalmāns eventually retreated. It fell at last to the Sultān of Bijāpur in 1652, the governor, so says tradition, being bought over. About a century later it became part of the possessions of Morāri Rao, and from him it was taken by Haidar Alī in 1762. It remained a Mysore possession, with some slight interruptions, until the death of Tipū in 1799.

Of the many buildings in and about the town the most handsome is the Sher Khān mosque, which is constructed of dark green granite with black hornblende mouldings, and contains some excellent carving. Both this and another mosque in the fort have clearly been at one time Hindu temples. Bābayya's *dargāh* is another well-known Muhammadan institution. Bābayya, says the legend, was a prince who turned *fakir*. His spiritual guide gave him a twig, and told him to plant it wherever he stopped and to take up his residence at the place at which it budded. It budded at Penukonda, and the *fakir* and his following accordingly established themselves in the chief Hindu temple in the place. News of the sacrilege having been brought to the ruler of the place, he put the *fakir* and the priest of the temple through several tests to see which of them was the more holy man. In all of these the *fakir* was victorious, and

the king accordingly allowed him to remain in the temple. The *dargāh* is now a great place of pilgrimage for Musalmāns and the centre of an organization of *fakīrs* which extends throughout the Presidency.

The chief Hindu building in the place is the Gagana Mahal or palace. It is a handsome two-storeyed erection, possessing a tower from which a good view of the town is obtained. It is built in the same Hindu-Saracenic style which was also adopted in the palace buildings at Vijayanagar. Penukonda now contains the offices usual to the head-quarters of a subdivision and a *tāluk*, and is the station of a District Munsif. It is also of some importance from a commercial point of view, and takes the lead in all intellectual matters in the south of the District.

Tādpatri Town.—Head-quarters of the *tāluk* of the same name in Anantapur District, Madras, situated in 14° 55′ N. and 78° 1′ E., on the right bank of the Penner river, 2½ miles from the railway station at Nandiālpād. Population (1901), 10,859. It is said to have been founded in the sixteenth century by Rāmalinga Nāyudu, a subordinate of the Vijayanagar kings. After the battle of Tālikotā, the country round it was subdued by the Golconda Sultān and a Muhammadan governor appointed. Afterwards it was captured by Morāri Rao, and later by Haidar Alī. It is a considerable trading centre, and is noted for its silk and cotton cloths. It is also a place of much sanctity. Its founder built the temple on the river bank dedicated to Rāmeswara. His son Timma Nāyudu erected another temple to Chintalarāyaswāmi. These two shrines are elaborately decorated with sculptures which are some of the finest work extant of the Vijayanagar period. They are executed in a close-grained green stone that lends itself to minute finish. In the centre of the town another fine temple is now under construction by the local Chettis. Experts consider that it will be as fine a piece of workmanship as its ancient neighbours. Much of the design is being copied from the older work. Tādpatri was greatly damaged by a high flood which swept down the Penner in 1851. Three-fourths of the town was washed away, and much of the temple on the river bank was brought to the ground.

Uravakonda.—Town in the Gooty *tāluk* of Anantapur District, Madras, situated in 14° 57′ N. and 77° 16′ E. Population (1901), 9,385. A deputy-*tahsīldār* is stationed here, and the town has been a good deal improved in recent years. The main street is wide and regular, and there is a fine grove just outside. The triangular hill round the base of which it is built can

be seen from great distances over the level cotton-s
Uravakonda is the commercial centre of this porti
Gooty *tāluk*, and is also known for its weaving.

Wajrakarūr.—Village in the Gooty *tāluk* of Anant
trict, Madras, situated in 15° 1′ N. and 77° 23′ E. P
(1901), 3,884. The place, as its name implies, is not
diamonds. Two companies, the Indian Exploration (
and the Madras Diamond Mining Company, have conce
different parts of the ground; but they have not succ
finding any stones of value, and no work is being carri
present. Diamonds are, however, frequently picked u
villagers in the fields after rain. When heavy showe
great proportion of the people turn out and, taking the
with them, spend hours in closely searching the ground.
come in from various centres and purchase any finds.
years ago a stone was picked up which, when cut and p
was valued at upwards of £10,000.

Yādiki.—Town in the Tādpatri *tāluk* of Anantapur I
Madras, situated in 15° 3′ N. and 77° 52′ E., 4 miles fr
railway station of Rāyalcheruvu. Population (1901), 7,
is now the head-quarters of a deputy-*tahsīldār*. Fo
it was the chief town of a *tāluk*, but in 1859 the Yādiki
were divided between the *tāluks* of Gooty and Tādpatri
place has not flourished of late, its population having in
by only 3 per cent. during the last thirty years. The sole i
is weaving. Cotton *sārīs* for women, some with silk b
are sold to local brokers who export them to South Kan

MADRAS CITY

Madras City.—The capital of the Madras Presidency and Descriptive.
the third largest town in the Indian empire is built in a straggling fashion on a strip of land 9 miles long, from 2 to 4 miles wide, and 27 square miles in extent, on the shore of the Bay of Bengal, in 13° 4′ N. and 80° 15′ E.

The site is low-lying and almost dead level, its highest point being only 22 feet above the sea; and it is intersected by two languid streams, the Cooum and the Adyar, of which the former enters the sea immediately south of Fort St. George, in the centre of the city, and the latter near the southern boundary. Neither of them carries enough water to keep a clear channel, and except in the rains they both form salt lagoons separated from the sea by narrow ridges of sand.

Strangers to the city find it difficult to realize that they are in a place as populous as Manchester. Approached from the sea, little of Madras is visible except the first row of its houses; the railways naturally enter by way of the least crowded parts; and the European quarter is anything but typically urban in appearance. Most of the roads in this part run between avenues, and are flanked by frequent groves of palms and other trees; the shops in the principal thoroughfare, the wide Mount Road, though many of them are imposing erections, often stand back from the street with gardens in front of them; the better European residences are built in the midst of compounds which almost attain the dignity of parks; and rice-fields frequently wind in and out between these in almost rural fashion. Even in the most thickly peopled native quarters, such as Black Town and Triplicane, there is little of the crowding found in many other Indian towns, and houses of more than one storey are the exception rather than the rule.

The reason for all this lies in the fact that in Madras, if we except the sea on the east, there are none of the natural obstacles to lateral extension such as hem in Calcutta and Bombay. Land is consequently cheap; and though the population of the city is only two-thirds of that of Bombay and only three-fifths of that of Calcutta, it has spread itself over an area

5 square miles larger than that occupied by the former and only 3 square miles less than that covered by the latter. Though large parts are strictly urban in their characteristics, the city as a whole is, in fact, rather a fortuitous collection of villages, separated from the surrounding country by an arbitrary boundary line, than a town in the usual sense of the word.

For municipal and statistical purposes Madras is divided into twenty divisions, but in popular usage the different quarters of the city are referred to by the names of the villages within the original limits of which they stand. Some of these villages (Nangambaukam is an instance) are rural hamlets to this day, showing no sign of urban influence beyond the municipal lamp-posts and dustbins with which their streets are dotted.

The native quarters.

The commercial centre of the city is the native quarter called Black Town[1], which lies immediately behind the harbour and the two or three streets of European banks and mercantile offices which there face the sea, and is more thickly populated than any other part. Triplicane, the chief Muhammadan quarter, and Purasavākam and Vepery, where the greater number of the Eurasians reside, come next in density. All these lie in the middle of the city, but they are separated from one another by ample open spaces which will never be built over. Chief of these spaces is the Island, the city's principal parade and recreation ground, which is surrounded by the two arms of the Cooum river, and forms part of an extensive fire zone which the military authorities have reserved round the Fort. Next in importance comes the People's Park, begun in 1859 during Sir Charles Trevelyan's governorship, which consists of ornamental grounds with a considerable zoological collection. The Napier Park, lying between Mount Road and Chintādripetta, and the Robinson Park, north of Black Town, are also due to the initiative of Governors of the Presidency: namely, Lord Napier (1866–72) and Sir William Robinson (1875). Next to the Napier Park come the extensive grounds of Government House, and the open space round the group of public buildings which face the sea south of the Cooum. All these serve as lungs to the crowded centre of the city. Of the surrounding fringe the most thickly peopled area is that immediately north of Black Town, and its population will probably continue to increase rapidly, as it lies close to the busy quarter.

[1] This name was officially changed to George Town in 1906.

The principal European quarters are in the west and south of the fringe, in Egmore, Chetpat, Kilpauk, Nangambaukam, Teynampet, and in the strip of land on the north bank of the Adyar river. Here are the fine houses built by the merchant princes and the servants of John Company at the end of the eighteenth and the beginning of the nineteenth century, when officials were still allowed to trade. Many, such as Brodie Castle, Doveton House, Gambier's Gardens, still bear the names of the authors of their being. All of these are built of brick cased with shell-lime plaster (*chunām*), and are designed on very generous lines. The *zanānas* attached to some of them bear witness to the social customs of the period. Modern residences are planned on a more lowly scale and employ red brick. The European quarters.

These quarters of the city are served by handsome thoroughfares. Chief among them is Mount Road, running from the Wālājā gate of the Fort across the Island, past Government House, the Madras Club, St. George's Cathedral, and the Horticultural Gardens, thence beside the bank of the Long Tank, over the Adyar by the Marmalong Bridge (built in 1726 by Petrus Uscan, the most notable of the Armenians of old Madras) to the Governor's country residence at Guindy and the cantonment of ST. THOMAS'S MOUNT, 9 miles from the Fort. Nearly parallel to it, the shorter Mowbray's Road, with its fine banyan avenue, leads to the Adyar Club, built by Mowbray, the first Accountant-General; and at St. George's Cathedral it is crossed by the Cathedral Road and the Nangambaukam High Road. The latter of these runs up to the once fashionable quarter on the Poonamallee Road, while the former leads eastwards to the Marina, a broad esplanade, built in the governorship of Sir M. E. Grant Duff[1], which runs along the sea front from the High Court to the suburb of St. Thomé, and has the makings of one of the finest thoroughfares in India.

The public buildings of Madras are more than usually handsome; but this again is a fact which the stranger is not likely to perceive immediately, for they are scattered about in a manner that robs them of all collective effect. The Post and Telegraph Office and the new Bank of Madras building are naturally near the harbour and the mercantile centre of the Public buildings.

[1] Of it he wrote, 'we have greatly benefited Madras by . . . turning the rather dismal Beach of five years ago into one of the most beautiful promenades in the world. From old Sicilian recollections, I gave in 1884 to our new creation the name of the Marina; and I was not a little amused when, walking there last winter with the Italian general Saletta, he suddenly said to me, "On se dirait à Palerme."'

city, and so are the High Court and its appendage the Law College. The Fort, the zone reserved round it, and the Cooum sewer have, however, prevented the erection of other public buildings near these facing the sea, so that the next collection of them is more than a mile away on the Marina south of the Cooum mouth. This group consists of the Senate House, the beautiful office of the Board of Revenue (formerly the palace of the Nawābs of Arcot), and the Presidency College. Hidden in various isolated sites throughout the city are many other fine buildings: Government House; the Banqueting Hall, built by the second Lord Clive in 1802, and containing portraits of many Governors of Madras; the Museum and Connemara Library, the nucleus of which was the old Pantheon; St. George's Cathedral, Ionic in style and finished with the polished plaster-work that resembles marble; the Memorial Hall, erected by public subscription to commemorate the exemption of Madras from the horrors of the Mutiny; and others, which seen singly fail to arouse enthusiasm, but grouped together or more favourably situated would make an impressive collection.

The earlier public buildings, of which the Banqueting Hall and the Cathedral are instances, were built of brick cased with plaster moulded into detail copied from the Italian and other European schools. Since the introduction of granite from Cuddapah and North Arcot in 1864, local architecture has, however, been slowly working towards an adaptation of the Hindu Saracenic; and the High Court, the Law College, and the Bank of Madras are built in this style, in red brick and grey granite. The latest building material is the beautiful brown stone from Nellore, close-grained yet easily worked, of which the Young Men's Christian Association building on the Esplanade is made.

Statues.

The chief statues of Madras are those of Her Majesty the late Queen-Empress, near the Senate House; of the King-Emperor, opposite the Mount Road entrance to Government House; of Lord Cornwallis, in the Fort square; of Sir Thomas Munro, by Chantrey, on the Island; of General Neill, of Mutiny fame, opposite the Madras Club; of Justice Sir Muttuswāmi Ayyar, in the High Court; and of the Rev. Dr. Miller, on the Esplanade, opposite the Christian College.

Churches.

The churches of Madras deserve more space than can be accorded them. The foundation-stone of the Luz Church bears the date 1516 and the oldest European inscription in India. The St. Thomé Cathedral contains a series of memorials to Portuguese pioneers, beginning in 1557. St. Mary's Church in

the Fort, consecrated in 1680, is the oldest Protestant place of worship in India, and contains the graves of Governor Nicholas Morse, a great-great-grandson of Oliver Cromwell and the man who capitulated to La Bourdonnais in 1746; of Lord Pigot, who defended the Fort against Lally in 1759, and was afterwards deposed and imprisoned by his own Council; of the famous Swartz, missionary and statesman; of Sir Thomas Munro, who died of cholera while on a farewell tour in his beloved Ceded Districts in 1827; and of many others who have made Madras history. The Roman Catholic Cathedral in Armenian Street was erected in 1775 by the Capuchins; and about the same time the Armenians, then a wealthy and influential community, built their church in the same street. St. Mark's, Black Town, was consecrated in 1804, St. George's Cathedral in 1815, and St. Andrew's (the Scotch Kirk) in 1821. The two last were designed by the Civil Architect, Major De Havilland.

The principal Hindu temples are those dedicated to Vishnu and Siva respectively in Triplicane and Mylapore; and the chief mosque is that in Triplicane.

Climate, temperature, and rainfall.

The climate of Madras has been described with considerable accuracy as three months hot and nine months hotter. The cooler months are never cold, the mean temperature of December and January being 76°; but the heat in the summer does not approach that of Northern India, the mean for May and June being the moderate figure of 90°. The mean for the year is 83°. The annual rainfall, based on figures for eighty-five years, averages 49 inches, of which 29½ inches are received during the north-east monsoon from October to December and 15 inches from June to September in the south-west monsoon. The heaviest recorded fall during this period was 88 inches in 1827, and the smallest 18 inches in 1832, the year before the Guntūr famine.

Cyclones.

Like other places on the Bay of Bengal, Madras is liable to severe cyclones. In October, 1687, a storm raged for five days, and drove ashore two ships lying in the roads. In 1721 another storm swept four ships from their moorings and wrecked one of them. On October 3, 1746, when La Bourdonnais' fleet was in the roads after the capture of the town, a cyclone sank three of his ships and two prizes, while four others either lost or cut away their masts and 1,200 men were drowned. In 1782 more than 100 native craft which had come to Madras with rice to feed the thousands who had flocked into the town to escape Haidar's horsemen were wrecked, and

a terrible famine followed. Other cyclones occurred in 1811, 1818, 1820, 1836, 1843, and 1846. In the first of these ninety country vessels went down at their anchors, and the surf broke in 9 fathoms of water 4 miles from the shore. In the last, the Observatory anemometer broke at a registered pressure of 40 lb. to the square foot, and one of the massive masonry pillars on the Elphinstone Bridge was blown over. In 1853, 1858, 1863, 1864, and 1865, other cyclones visited the place. The most destructive of all happened in May, 1872. The wind pressure was 53 lb. to the square foot. The shipping in the roads did not receive sufficient notice to put out to sea; and between 6 and 11 a.m. nine English vessels, with an aggregate tonnage of 6,700 tons, and twenty native craft were driven ashore, though owing to the use of the rocket apparatus only nineteen lives were lost. In 1874 another cyclone visited Madras, but this time the ships put to sea in time and escaped. The last was in 1881 and, as narrated below, did great damage to the harbour.

History. Madras was founded in 1639 in the reign of Charles I. MASULIPATAM, then the Company's head-quarters on the Coromandel Coast, was hampered by the unfriendliness of the officials of the kingdom of Golconda, within which it lay, and by its distance from the native weaving and dyeing centres. These were farther south in the territories of the dying empire of Vijayanagar, the representative of which lived at CHANDRAGIRI and ruled through Naiks with local authority. In August, 1639, Francis Day, chief of the subordinate factory at ARMAGON, south of Masulipatam, obtained from one of these a grant of half the revenues of Madraspatam and permission to build a fort there. This fort was begun in anticipation of the Company's sanction by Day and Andrew Cogan, the Agent on the Coromandel Coast, in March, 1640, and was named Fort St. George, after England's patron saint. In honour of the local Naik's father Chennappa, the settlement, as distinct from the town of Madras itself, was called Chennappapattanam, but the natives now apply the name Chennapattanam to the whole town. The Portuguese at St. Thomé, whose prosperity was already waning, had invited Day to settle there, but he preferred an independent position[1]. By the autumn of 1640, 300 or 400 families of weavers and others, attracted by an exemption from taxes for

[1] Law and order were moreover at a discount there. One of the early letters to the Company says: 'Had wee imbraced theire proffer to reside in that cittie, you must have sought out for such servants to doe your busines as were both stick free and shot fre and such as cood disgest poizon, for this is their dayly practice in St. Thoma, and no Justice.'

thirty years, had settled round the Fort, which, when finished, consisted of a tower or house enclosed by a rectangular wall 400 yards long by 100 yards wide, with bastions at the four corners.

In 1641 the place became the Company's head-quarters on the Coromandel Coast, in 1653 it was made independent of Bantam, and in 1658 Bantam and the stations in Bengal were put under its orders. The old records still in the Fort vividly describe the simple existence of the factors of those early days; the common mess at which the Governor presided, the prayers which every one had to attend, and the penalties prescribed for swearing, drinking more than half a pint of brandy at a sitting, or getting over the Fort wall. They also detail the many trials undergone; the irrepressible interlopers, the ubiquitous pirates, and the hungry native potentates with their never-ending demands for more *douceurs*.

The Fort was frequently threatened. In 1672 the French took St. Thomé and fortified Triplicane; the Dutch drove them out in 1674; in 1687 Aurangzeb became aggressive; his general Daud Khān blockaded the place from St. Thomé in 1702; and in 1739 the Marāthās were hovering round. At each successive scare something was done to put the Fort, and the wall which had been built round Black Town, into better order. But, though these spasmodic efforts resulted in Day and Cogan's Fort being improved out of recognition, the Company always grudged expenditure on fortification, and the place remained wretchedly weak. When in 1746, during the first war between the English and the French, Dupleix's lieutenant La Bourdonnais attacked[1] it, Governor Morse meekly capitulated at once, and he and his Council were carried off to Pondicherry.

Fort St. David then became the head-quarters of the Company and continued as such until 1752.

The French retained possession of Fort St. George until 1749, when it was given back under the terms of the Treaty of Aix-la-Chapelle; and during those three years they pulled down the native and Armenian part of Black Town, which then clustered close under the north wall, and made a glacis out of the débris. But in other ways they left the Fort in an even worse condition than they found it; and when the Company regained possession they took steps at once to improve it, turning the north arm of the Cooum river away from the south wall of the Fort, and building on the ground so obtained and on the west a series of new bastions and works

[1] This attack, and the later siege by Lally, referred to below, are graphically described by Orme.

which practically constituted a new Fort enclosing the old one[1]. These changes enabled Pigot successfully to resist Lally's attack in 1759. The result of this siege, which followed on the second outbreak of war between the English and the French, was of the utmost moment, for the French had already captured Fort St. David and several others of the English settlements, and the fall of the Company's head-quarters would have been attended with disastrous consequences. The struggle lasted from December 14, 1758, to February 16 following, and was most obstinately contested on both sides. The chief line of attack was along the shore north of the Fort, Lally's principal battery being near the present High Court. The place was saved by the appearance of an English fleet in the roads, the French retreating as soon as it arrived.

The greater part of the Fort as it stands to-day, including its northern half and the Secretariat buildings, was either restored or constructed between 1763 and the end of that century. With the exception of Haidar Alī's threatening approach in 1769 and again in 1780, on which latter occasion he ravaged the country up to the very gates of the Fort, Madras has been free from outside attack since Lally's siege.

Beyond the limits of the Fort and Black Town the Company had little authority in early days. Tondiarpet, Purasavākam, and Egmore were granted to it in 1693; Veysarpādi, Nangambaukam, Tiruvottiyur, and Ennore in 1708; and Vepery, Perambūr, and Pudupākam in 1742. Possession of these and other tracts, including St. Thomé, which had been occupied in 1749 to prevent the French getting a footing there, was confirmed by a *farmān* of the Mughal emperor in 1765. These villages were usually leased out, and though some of them boasted outposts with guns, they were too weak to be seriously defended when attacks occurred.

South-west of the Fort, stretching as far as Mylapore and the Long Tank, where now lies the most prominent part of the town, was an open and treeless expanse called the Choultry Plain; and at the time of Lally's attack the Governor's garden-house on the Cooum bank, where Government House stands now, was apparently the only European residence on that side of the Fort. Most of European Madras as it now appears was built at the end of the eighteenth and the beginning of the nineteenth century.

Population. The population of Madras in 1871 was 367,552; in 1881,

[1] A minute description of these improvements is given in Orme, vol. ii, pp. 402–5.

405,848; in 1891, 452,518; and in 1901, 509,346. It is increasing more rapidly than that of ordinary rural areas, and the census statistics of birthplace show that this is largely due to immigration from the neighbouring Districts of Chingleput and North Arcot. Between 1891 and 1901 the general rate of increase was 12·6 per cent., but in parts of the city it was much higher. The number of people in Perambūr and Veysarpādi, for example, owing mainly to the establishment of two cotton mills, the Madras Railway workshops, and the quarters and bazar of a native regiment in or near that locality, has more than doubled in the last thirty years; and the inhabitants of the houses between Parry's corner and Messrs. Arbuthnots' office have doubled in numbers even during the last decade. Emigration statistics show that large numbers of persons left Madras for other countries by sea; but only a small proportion of these were natives of the city itself, the majority coming to the port from inland Districts.

Its density.

The density of the population is greater than that of any other of the large cities of the Presidency; and the average number of persons living in each occupied house is nine, compared with six in the other towns with over 50,000 inhabitants, while in the heart of Black Town it is as high as thirteen. The city is also increasing in strictly urban characteristics. The proportion of the inhabitants between twenty and forty years of age is as high as one-third of the total, and the proportion of women to men continues to decrease and is now only as 98 to 100. In the parts where hard manual labour is in the greatest demand, such as Perambūr and the area round the harbour, the proportion of women is even less.

Religions.

Owing to the presence of the Prince of Arcot and his following and of a large number of Europeans and Eurasians, the proportion of Musalmāns and Christians is considerably higher than usual, there being 113 Musalmāns and 80 Christians in every 1,000 of the population, against 64 and 27 in the Presidency as a whole. In 1901 there were 4,228 Europeans and 11,218 Eurasians in Madras, but the Armenians, who once formed a considerable community, numbered only 28. There were 63 Pārsīs and 11 Jews.

The city is the head-quarters of the Church of England Bishop of Madras, of the Roman Catholic Archbishop of Madras and the Bishop of Mylapore, of the Church of Scotland, and of many Christian missions and societies, among which may be specified the Societies for the Propagation of the Gospel and for Promoting Christian Knowledge, the Church

Missionary Society, the Wesleyan Mission, the London Missionary Society, and the Madras Bible Society.

Vernaculars and castes.

The chief vernacular of the city is Tamil, which is spoken by nearly three times as many people as any other tongue. Next in importance comes Telugu, which is the language of a fifth of the population. It follows that the Tamil and Telugu castes largely predominate. Of the former the Paraiyans (labourers, 63,000), Vellālas (63,000), and Pallis (52,000) are the most numerous, and of the latter the Balijās (merchants, 48,000). The next most numerous caste, the oil-pressing Vāniyans, is only 20,000 strong. Brāhmans are more than usually numerous, forming 6 per cent. of the Hindu population. Most of the Musalmāns returned themselves as Shaikhs by tribe. There is a sprinkling of foreign races, but none of them is numerous.

Occupations.

In their occupations the people naturally present a complete contrast to the Presidency as a whole, less than 4 per cent. being employed in callings connected with agriculture and pasture, as compared with 71 per cent. in the rest of the Province, while the numbers gaining their livelihood from service under Government, personal and domestic service, the supply of food and drink, commerce, and the learned and artistic professions are proportionately much larger than elsewhere. The number of persons of independent means is also unusually high.

Public health.

Births and deaths are registered with more accuracy in Madras than anywhere else in the Presidency, and consequently the rates of both are apparently much higher than in other urban areas. On an average of recent statistics they were 41·9 and 40·5 per mille, respectively, against 34·6 and 30·5, respectively, in all urban areas. The great majority of the deaths are returned, as usual, under the vague headings of fevers and 'other causes.' The city was free from plague up to 1905, when a few cases were discovered, and it remained infected for some time. Cholera is frequently imported from the neighbouring villages, over which the municipality has no sanitary control.

The city cannot boast that it is healthy to native life, though to Europeans it is salubrious enough. The tanks to the west, and the rice-fields within its limits which are irrigated from these, keep the subsoil water at a high level, and moreover the drainage system has hitherto been inadequate to remove the large quantities of water brought every day by the municipal water-works. The soil is accordingly much water-logged. Considerable quantities of sewage also at present flow into the Cooum, owing to the inadequacy of the existing drainage

arrangements. A new drainage scheme, referred to below, is expected to do much to cure these defects. The recently erected Moore Market has been of service in improving the food-supply.

Besides the educational and medical institutions described below, Madras possesses a large number of scientific, charitable, and social institutions and societies. Chief among those devoted to science are the Observatory and the Museum. The Observatory was the first established by Europeans in the East. Its nucleus was a collection of instruments formed by a scientific member of Council, William Petrie, and presented by him to the public service when he left India in 1787. The present building was erected in 1792, Sir Charles Oakeley, who was keenly interested in such matters, being then Governor. John Goldingham was the first astronomer, holding the post till 1830; and he and his successors, notably T. G. Taylor, F.R.S. (1830–48), Captain W. S. Jacob of the Bombay Engineers (1849–59) and N. R. Pogson (1861–91), have done much work of permanent value in astronomical annals. The Observatory contains among its instruments a large equatorial and an efficient transit circle. The Meteorological department in connexion with it was established in 1867, and was brought under the Government of India in 1874. In 1899 the Madras Observatory was transferred to the Government of India, the astronomer became the Director of the Observatories at KODAIKĀNAL and Madras, and the latter institution was put under the immediate charge of a Deputy-Director, who is also the Meteorological Reporter to Government. Its work is now chiefly confined to meridian observations for determining the time, and the maintenance of the time service, which is effected by the daily transmission to the Central Telegraph Office at Madras, and thence automatically throughout India, of a signal marking the moment at which standard time is 4 p.m. Special observations are also made for the issue of storm-warnings, and the daily weather report for the Presidency is compiled from telegraphic information received from the various recording stations.

Institutions.

The Observatory.

The Museum was founded in 1851. Its nucleus was a collection of geological specimens presented by the Madras Literary Society and the duplicates of the articles sent to the Great Exhibition of 1851 in Hyde Park. In 1855 subordinate museums were established in five different Districts; but they were not successful, and in 1861 all but that at Rājahmundry were closed and many of the articles in them were transferred

The Museum.

to Madras. In 1855 a Zoological garden was connected with the Madras Museum, but this was transferred to the People's Park in 1863. In recent years, under Mr. Thurston's care, the Museum has been very greatly developed. The policy adopted has been to render it a popular illustrated guide to the natural history (animal, vegetable, and mineral), arts, archaeology, ethnology, and economic resources of the Presidency; and that it is appreciated by the public is sufficiently shown by the fact that it is visited annually by more than 400,000 persons. Among the most valuable objects in the archaeological section are the sculptured marbles from the railing of the Buddhist *stūpa* at Amarāvati in Guntūr District, the date of which is about the end of the second century A.D.; and a fragment which is supposed to be part of one of Buddha's bones, as it was found (at Bhattiprolu in the same District) in a rock-crystal casket enclosed in an outer stone case, inscribed with the statement that it was made to contain relics of Buddha. The collection of arms and armour from the Arsenal in the Fort and the Tanjore palace, the prehistoric antiquities, and the numismatic collection, which is specially rich in coins of the various native dynasties of Southern India and of the various European Companies which have held sway there, are other notable possessions of the institution. Attached to the Museum is the Connemara Public Library, which was opened in 1896, contains more than 10,000 standard works, and is used by about 14,000 persons annually; and a theatre, capable of seating 400, provided with a stage adapted for lectures, conferences, and charitable entertainments by amateurs.

Of the charitable institutions in Madras two of the oldest are the Friend-in-Need Society and the Monegar Choultry, which were founded in 1807 and 1808 respectively. Both are supported by public subscriptions and grants from Government. The former devotes itself to the relief of destitute Europeans and Eurasians and the suppression of mendicity among them. The latter affords shelter, food, and clothing to the native poor and infirm, irrespective of caste or creed, and relieves 50,000 cases annually. Besides these, Government contributes to the up-keep of two civil orphan asylums, a foundling asylum, the Triplicane Langarkhāna, or poorhouse, and other charitable institutions.

Madras has a Literary Society, which possesses a library of over 45,000 volumes; a Fine Art Society, which holds an annual exhibition and in other ways encourages art; an Agri-Horticultural Society, which manages the ornamental gardens

opposite the Cathedral and holds an annual flower show; a Musical Association and an Amateur Dramatic Society; a Gymkhana Club; clubs for cricket, boating, and racing; and the two favourite resorts of Madras society, the Madras Club and the Adyar Club. The Madras Club was founded in 1831. Up to then the usual meeting-place had been Lord Cornwallis's Cenotaph on the Mount Road, or (for the younger members of the King's and Company's services) the Tavern of the Exchange (now the British Infantry mess) in the Fort.

Arts.

The chief indigenous arts of Madras are silk- and cotton-weaving, silver-work, and embroidery. Raw silk is obtained from Bangalore, Calcutta, and Bombay, mixed with cotton and woven into native cloths which are sold locally and also exported to Ceylon, Burma, the west coast of the Presidency, and even Natal. The cotton cloths made are of the ordinary coarse variety. The silver-work and embroidery employ but few hands; but the former is less known than it deserves to be, while the latter is usually in excellent taste and consists of silk, gold or silver thread, or green beetle wings procured from Cuddapah, worked on satin or muslin. The School of Arts gives instruction in a number of other directions, such as wood-carving in the Dravidian style, brass and copper repoussé work, lacquer-work, and carpet-weaving; but none of these arts has as yet taken root outside its walls.

Manufactures.

The city has hardly any notable manufactures. Until very recently tanning was an important industry. The factories are just outside the town in Chingleput District, which in 1900 possessed 97 of them with an out-turn valued at 32 lakhs. The industry is now seriously threatened by the superior speed and cheapness of the American process of chrome tanning, but an attempt is being made to introduce similar methods in Madras.

The Buckingham, the Carnatic, and two other mills, all established between 1874 and 1883, spin yarn and weave cotton cloths of various descriptions. Their total capital is 27 lakhs, they possess 1,700 looms and 117,000 spindles, and they employ a daily average of more than 7,000 men, women, and children. Cement and tile-works employ 350 hands, and produce an annual out-turn valued at over $1\frac{1}{2}$ lakhs. There are nine iron foundries and four cigar factories, one of which makes twelve million cheroots annually. A new industry is the manufacture of aluminium utensils.

Commerce and trade. Sea-borne trade.

Although Madras has no natural harbour, it ranks fifth among the ports of India in the value of its trade and fourth in the tonnage of vessels which enter and clear at it. But if

the averages for the last two quinquenniums are compared, it will be found that foreign trade has remained practically stationary. Fifteen or twenty years ago this was always greater than that of Karāchi and frequently in excess of that of Rangoon, but during the last five years it has always been less than that of Rangoon and has twice been less than that of Karāchi.

Including the coasting trade, but excluding Government stores and treasure, the annual value of the total external import trade of the port during the five years ending with 1903-4 averaged 781 lakhs, and of the export trade 557 lakhs, making an aggregate of 13·38 crores, or £8,920,000. It is one of the few ports in the Presidency at which imports exceed exports. Of the imports 651 lakhs and of the exports 502 lakhs was from and to foreign countries, and the remainder was carried coastwise from and to Indian ports. An annual average of 1,200 vessels, with a tonnage of 2,391,000, enter and clear the port in cargo or in ballast. Of these an average of 950, with a tonnage of 1,802,000, are coasting traders. More than 40 per cent. of the total sea-borne trade of the Presidency is conducted from the port. More than 70 per cent. of the imports and nearly 60 per cent. of the exports are respectively brought from and sent to the United Kingdom.

By far the largest item in the foreign imports is European piece-goods, twist, and yarn. Next come iron and steel, machinery and railway plant, and kerosene oil. Of the foreign exports, hides and skins are the most important item, and they are followed after a long interval by Indian piece-goods, indigo, and raw cotton. The native traders in the town are chiefly Tamil Chettis and Telugu Komatis and Balijās. Foreigners, such as Pārsīs, Gujarātīs, Bhātias, and Bohras take a share, but are few in numbers.

The harbour. The serious disadvantage of the absence of any natural harbour at a port where the surf is continual has been met by the construction of a screw-pile pier and a harbour of masonry. The pier was completed in 1862. The harbour was begun in 1876 and by September, 1881, was nearly completed. It consisted of two parallel masonry breakwaters, each 500 yards distant from the pier, running out at right angles to the shore for 1,200 yards into $7\frac{1}{2}$ fathoms of water, and then bending towards one another so as to leave an entrance in the centre of the east side 550 feet wide. The space thus enclosed was calculated to hold nine steamers of from 3,000 to 7,000 tons. On November 12, 1881, a cyclone occurred, which, besides minor

damage, washed away half a mile of the breakwaters, threw the two top courses of concrete blocks into the harbour, hurled over two of the Titan cranes used on the works, lowered and spread out the rubble base of the breakwaters, and washed away 1½ miles of construction railway.

In 1883 a committee of English experts reported on the best method of completing the work, and in 1884 operations were recommenced. The harbour was completed in 1896 on practically the original design, except that the width of the entrance was reduced to 500 feet. The total cost from first to last was 126 lakhs. Since then, however, it has silted up considerably; and after much discussion in India and England, it has now been decided to close the existing entrance on the east, which is rapidly shallowing, and to open another at the north-east corner. It has also been suggested that, in the large accretion of sand which the construction of the harbour has occasioned on the coast to the south, a dry dock should be excavated in which ships could be unladen direct on to wharves instead of into boats and lighters as at present. By Madras Act II of 1886 the harbour was vested in the Harbour Trust Board, the average income of which was 7½ lakhs, mainly derived from harbour dues. By Madras Act II of 1905 it has now been vested in a board of trustees. The light, on the main tower of the High Court building, is a double-flash white light visible 20 miles in clear weather.

Rail-borne trade.

The rail-borne trade of the city amounts to 740,000 tons, of which 344,000 tons are imports and the remainder exports. The imports from places within the Presidency are nearly treble those from outside it, but the exports go in about equal quantities to places within and without the Presidency.

Of the external imports, more than half come from the Nizām's Dominions, largely in the shape of coal from the Singareni mines. Nearly all the external exports are sent to Mysore. They consist chiefly of coal and coke brought to Madras by sea from Bengal and sent to Kolār for use on the gold-fields, while grain and pulse, metals, and kerosene oil are also important items. The coal sent to Kolār has greatly decreased in quantity since electrical power has been supplied to the gold-mines from the Cauvery Falls.

The chief internal imports are grain and pulse, which come largely from Ganjām, Vizagapatam, Godāvari, and the three Districts—Nellore, Chingleput, and North Arcot—adjoining the city; stone, lime, and wood, imported mainly from these same three Districts; dyes and tans, from these three Districts and

the Deccan; oilseeds, and hides and skins. The internal exports consist chiefly of salt, sent mainly to the inland Districts in the south; grain and pulse, dispatched largely to the three adjoining Districts; metals, most of which are sent south; coal and coke; kerosene oil, and European piece-goods.

Means of communication.

The whole of this trade is carried by two railways, the Madras and the South Indian systems. The former is on the standard gauge and has three sections. Of these, the north-east or East Coast line, starting from the Royapuram terminus, connects Madras with Calcutta; the north-west line, from the Central station, leads to Bombay; and the south-west line from the same terminus goes to the West Coast. The South Indian Railway, a metre-gauge line with its terminus in Egmore, runs to Tuticorin, whence steamers ply to Colombo and so place Madras in communication with the ocean liners which touch at that port. The Madras and South Indian Railways have a joint station on the Beach, opposite the harbour, for the convenience of the shipping; and the north-east line of the former is being carried into the Central station.

The British India Company's steamers sail periodically from Madras to Calcutta, Bombay, Rangoon, and the Straits.

The BUCKINGHAM CANAL provides cheap transit to and from places along the coast between Guntūr District north of the town and South Arcot District south of it. A cheap and speedy service of electric trams is in operation in the more crowded parts of the city, and the Corporation maintains 187 miles of metalled roads. There is a telephone exchange and an hourly postal delivery throughout the town.

Revenue administration.

The revenue of Madras is administered by a Collector, who is also Collector of Sea Customs, Protector of Emigrants under the Emigration Act XXI of 1883, and Superintendent of Stamps and Stationery for the Presidency.

In the early days of Fort St. George revenue was raised not only from the rents of the villages and gardens round the Fort, but also by taxes on tobacco, betel, wine and country spirit, by land and sea customs, by market dues, and by quit-rents on houses[1]. The main part of these was collected by an officer known as the Land Customer. In 1730 the total revenue amounted to about £30,000. After Chingleput District came into the Company's possession in 1763, the management of the villages, which were then known as the Home Farms, was made over to the Collector of that District; but in 1870 the

[1] 'Nine fanams for every great house, 6 fanams for every small house, and 3 fanams for every little round house.'

Collector of Madras, as the Land Customer was by that time called, was made responsible for the revenues of the city, and he continues in charge of all of them except those from Salt and Abkāri. The agricultural land in the town is held on the ordinary *ryotwāri* tenure; but the old quit-rents on house property, which are still collected, are peculiar to the city. The chief items of general revenue in the town (in thousands of rupees) were, in 1903–4: from land revenue 98, quit rents 83, stamps 452, excise 1687, and income tax 516. Besides these, large receipts under other heads, such as customs, owe their importance to the fact that the city is the chief port and the capital of the Presidency, but can hardly be considered to form part of its revenue as a District.

Civil and criminal justice.

In the early days of old Madras both civil and criminal justice were administered by the Choultry Justices, who consisted of the Land Customer, the Mint-master, and the Paymaster, and sat twice a week at the Choultry. From 1678 the Governor and Council sat on Wednesdays and Saturdays in the chapel of the Fort to hear the more serious civil and criminal cases, while the Choultry Justices continued to dispose of petty matters. In 1688 the newly appointed Mayor and Aldermen were constituted a Court of Record which replaced the Choultry Justices, and about the same time a Court of Admiralty with a Judge from England, the forerunner of the present High Court, was established under charter. In 1726 the Governor and Council were appointed a Court of Quarter Sessions for the trial of all offences except treason, and were also empowered to hear civil appeals from the Mayor's Court. In 1801 a Supreme Court, consisting of a Chief Justice and two barrister Judges, was established by royal charter, under Act of Parliament, with original jurisdiction in Madras City; and finally in 1862 the Company's two courts of civil and criminal appeal, styled the Sadr and Faujdāri Adālats, were combined with the Supreme Court to form the present High Court.

Civil Justice is now administered by the three judges of the Court of Small Causes, by the City Civil Court, and by the High Court. The first of these had its origin in a Court of Requests founded in 1753, and then possessing jurisdiction only up to Rs. 20. It now tries cases up to Rs. 2,000 in value. The City Civil Court, constituted by Act VII of 1892, has power to hear suits up to Rs. 2,500 in value, except those which are cognizable by the Small Cause Court.

Criminal justice is administered by four full-power magis-

trates called the Presidency Magistrates, sessions cases arising within the city being heard by the High Court.

The Municipal Corporation.

The internal administration of the city is in the hands of the Municipal Corporation, which consists of a President paid from municipal funds and appointed by Government, and a body of honorary commissioners partly elected by the ratepayers and certain public bodies and partly nominated by the Government. The President is assisted in his executive work by an Engineer, a Health officer, and a Revenue officer, all of whom are also appointed by Government. A special Act, which has recently been remodelled, governs the operations of the Corporation.

The first organized effort towards municipal government in Madras was made in 1687, when, on the initiative of Josia Child, Governor of the Company, who had perhaps taken the idea from Dutch institutions in India, a Mayor and Corporation consisting of 12 Aldermen and 60 Burgesses, with a Recorder, were established by charter. On September 29, 1688, the Aldermen in robes of scarlet serge and the Burgesses in white China silk met in state in the Fort to hear the charter read and take the oaths. Their only income at first was from certain petty dues on measuring grain and weighing goods which the Government assigned to them. The records show that roads and bridges were repaired out of the proceeds of an impost called the Town Conicopillay's duty; but it is not clear that the proceeds of these were administered by the Corporation, and as the natives strenuously resisted all new taxation that body apparently had no considerable revenue. Municipal government proper began with the passing of an Act of Parliament in 1792, which legalized the collection of assessments on houses and lands in the three Presidency towns for expenditure upon their good order and government. From that time forward a succession of Acts has gradually improved the municipal machinery, and the Corporation now has an annual revenue, excluding receipts from loans, of 13 lakhs. The chief items are the house and land taxes, which together bring in nearly 5 lakhs, and the water tax, which produces nearly 2 lakhs. The largest item on the expenditure side is sanitation, while drainage, roads, and water-supply follow next. The commissioners have been continually hampered in their undertakings by the straitness of their means. The straggling nature of the city involves a larger expenditure on many items than is easily met from the receipts, and improvements of any magnitude have had to be paid for from loans, the interest on and repayment of which form a heavy charge on the revenues.

The most important of the commissioners' undertakings have been the water-supply and drainage of the city. Madras is supplied with water from a reservoir called the Red Hills Lake, which is fed from another reservoir known as the Cholavaram tank, which in its turn is filled by a channel from the Korttalaiyār river. This lake is 7 miles distant, and the water is brought from it by an open channel and eventually led into pipes and distributed throughout the city. The scheme was begun in 1868 and finished in 1872, and was carried out under the supervision of the municipal Engineer, Mr. Standish Lee. On November 20, 1884, a cyclone burst the bank of the Red Hills Lake, and the breach rapidly widened until it was nearly a mile in length and the lake was practically emptied. For ten days, until the breach was temporarily repaired, Madras was dependent upon the small Trevelyan reservoir and the old Seven Wells supply for its water. The Red Hills Lake has a capacity of 100 million cubic yards; but as it lies low, the head of the supply channel being not quite 36 feet above sea-level, only a portion of this can be drawn off at a level which will command the city, and when the water in the lake falls below a certain height the supply has to be maintained by pumping. The annual quantity of water supplied averages 415 million cubic feet; but owing to the want of pressure due to the low situation of the lake, the amount available is insufficient for the needs of the people in about one-third of the area of the city. To remedy this it is proposed, when funds are available, to introduce a new scheme under which Red Hills water will be pumped to the top of a ridge near the lake which is 90 feet above sea-level, and taken thence to the city in pipes under the pressure resulting from this elevation. The capital cost of the existing works was 24½ lakhs, of which 21 lakhs was met from loans and the remainder from revenue and grants from Government. Up to 1905, 11½ lakhs had been invested in Government securities towards a sinking fund for the repayment of this sum. The annual cost of the maintenance of the scheme is Rs. 1,16,000. Water-supply.

Parts of the city have been systematically drained for many years. Black Town, the most thickly populated quarter, is served by a complete system which was begun in 1882 and was prepared by the municipal Engineer, Mr. J. A. Jones. This consists of open U-shaped drains at the side of the streets, which empty themselves into three parallel sewers. These discharge into a main sewer, which leads to a well in Royapuram, whence the sewage is pumped through an iron main for Drainage.

$1\frac{1}{2}$ miles, and then taken by an open masonry channel about half a mile farther to a sewage farm of about 78 acres north of the city. Here it is utilized for growing hay, which is largely bought by the Commissariat department and brings in a considerable revenue. This scheme cost $10\frac{3}{4}$ lakhs, and the amount was raised by a special loan. Up to 1905, $5\frac{1}{4}$ lakhs had been invested in Government securities towards its repayment. The annual cost of maintenance of the scheme is Rs. 67,000.

Besides Black Town, certain other smaller localities have been drained on the same system, by leading the sewage into wells and pumping it on to sewage farms. There are four of these pumping stations. One in D'Mellow's Road serves Purasavākam, Chūlai, Vepery, and Egmore; another, in the Napier Park, Chintādripetta and North Triplicane; a third, at Kistnampet, South Triplicane and Kistnampet; and the fourth, at Mylapore, deals with the sewage of Mylapore and St. Thomé. The total area of the four farms is 65 acres. The cost of maintenance of the four systems aggregates Rs. 37,000. These farms are, however, too small to deal with all the sewage pumped, and are, moreover, situated too near human habitations.

A new scheme for the drainage of the entire city, except Black Town, has accordingly been drawn up and is now in progress. This will do away with the isolated farms, and will take the whole sewage of the town to a large farm beyond its northern outskirts. The essentials of the scheme were planned by an expert from England, but the details have been modified by the Engineer to the municipality. The house drains will discharge into siphon traps fixed in the street, and the sewage will be led, by pipes laid at self-cleansing gradients, to seven different wells serving the following seven quarters of the town: Mylapore; Kistnampet and South Triplicane; North Triplicane, Chintādripetta, and Pudupet; Egmore; Purasavākam, Chūlai, and part of Perambūr; Tondiarpet and Washermanpet; and Royapuram. From these wells it will be forced under pressure into a high-level cast-iron main, which will be 9 miles long and will traverse the length of the city from Mylapore in the south to the sewage farm in the north. The whole scheme is estimated to cost 40 lakhs.

[Ot]her [sa]nitary [me]asures. Besides the outlay on the water-supply and drainage schemes, the commissioners spend an average of $3\frac{1}{4}$ lakhs, or more than one-fifth of their income, on other sanitary measures. The chief recent improvements have been the construction of the Moore Market, so called after the late President of the munici-

pality, at a cost of $2\frac{3}{4}$ lakhs; the erection of two cinerators for the destruction of the town rubbish; and the cutting of a number of new streets and lanes through the most crowded and insanitary parts of the city. The more notable of these latter are the street from the Wālājā Road to Pycroft's Road in Triplicane, and that from Waller's Road to the Napier Park.

Troops and volunteers. A few troops are always stationed in Madras itself, in the Fort and elsewhere, besides others at St. Thomas's Mount, Poonamallee, and Pallāvaram on the outskirts of the city. In addition, there are three corps of Volunteer Rifles, the Madras Volunteer Guards, the South Indian Railway Volunteer Rifles, and the Madras Railway Volunteers; and also the Madras Artillery Volunteers.

Police. The police arrangements in old Madras were as primitive as those for the administration of justice. Outside the Fort an hereditary official known as the Pedda Naik ('big peon') was appointed, who, in return for the grant of certain rice-fields rent free and petty duties on rice, fish, oil, betel, and nut, was required to keep up a certain staff of peons (originally twenty were found enough, but the numbers were afterwards increased), and either to detect all crimes committed or make good the losses of those who were robbed. He was also required to provide the Governor when called upon with a body-guard of 150 peons. On state occasions he used to ride at the head of his peons in the processions accompanied by 'our country music,' as the old papers call it, the precursor, apparently, of the Governor's Band. In 1858 the police throughout the Presidency, the force in Madras included, was entirely reorganized and placed under Sir William (then Mr.) Robinson, the first Inspector-General of Police. The force in Madras City consisted in 1904 of a Commissioner of Police, with a Deputy and 2 Assistant Commissioners, 16 inspectors, and 1,321 subordinate officers and constables, of whom 4 were mounted, and 44 marine police. There were 22 police stations.

Jails. The Penitentiary in Madras ranks as a Central jail, but unlike most of such institutions it is also used for the detention of prisoners sentenced to short terms, there being no subsidiary jails in the city. It has accommodation for 1,046 prisoners, including 59 in the hospital and 42 in the observation cells. The daily average number in 1904 was 1,091. The principal industry on which the convicts are employed is composing, printing, and binding forms and books for the Government Press, and the section of the jail in which this work is done is treated as a branch of the Press. On an average 320 convicts

were daily employed in this manner. Next in importance comes the manufacture of cotton goods, such as tent-cloth, rope, tape, and bedding for the various departments of Government, especially the army. In this work a daily average of 145 men were employed. Boot- and sandal-making for the Police, Jail, and other departments, and the expressing of gingelly oil occupy between them 80 men daily. The net profit on all the manufactures in 1904 was Rs. 42,000, which was considerably larger than that earned in any other Central jail. Within the Penitentiary is the only Government workhouse which has been established in the Presidency under the European Vagrancy Acts. Civil debtors are usually confined in a portion of the Central and District jails, but in Madras the Civil jail is in Popham's Broadway at some distance from the Penitentiary. Including its hospital, it will hold 81 persons. In 1904 the daily average number of persons confined in it was 34. There is also a Criminal Leper Ward in Royapuram, with accommodation for 23 persons.

Education. The first educational effort in the early days of Fort St. George was the dispatch by the Company of a schoolmaster, who arrived in 1678. In 1715 the European inhabitants convened a public meeting, and resolved to establish a free school for Protestant European and Eurasian children. St. Mary's Charity School was the result, and it survived till 1872, when it was amalgamated with the Civil Orphan Asylums. The first attempt to educate the natives was made by Christian missions. In 1717 the Danish missionaries at Tranquebar, of whom the chief was the famous Ziegenbalg, obtained leave from the Government to establish two schools, one for Portuguese in the English town and another for Malabars (Tamils) in the Black Town. Their labours in this and other stations received substantial support from the Society for Promoting Christian Knowledge.

Arts colleges. Madras is now the educational centre of the Presidency. Besides the University, which is purely an examining body, conferring degrees in Arts, Law, Medicine, Engineering, Teaching, and Sanitary Science, the city contained on March 31, 1904, 10 Arts colleges, 3 professional colleges, 97 secondary and 421 primary schools, and also 22 technical and training schools. Of the ten Arts colleges, three—the Presidency College, the Madras Christian College, and Pachayyappa's College—are first-grade institutions giving instruction up to the B.A. degree. The first of these is managed and financed by Government, while the other two are aided with grants. The

three professional colleges are the Law College, the Medical College, and the College of Engineering. Most of the lectures in the Law College were originally given by specially selected barristers and *vakīls* of the High Court in the early mornings and late afternoons when the Court was not sitting, but from 1902 it has been made a whole-time college with a permanent staff of a principal and three professors. The Medical College has also recently been reorganized in important directions. At SAIDAPET, just outside the limits of the city, are the Teachers' College and the College of Agriculture. The latter is to be transferred to Coimbatore. A noticeable point in connexion with all these special colleges is the high proportion of Brāhmans among the students. Games and athletics are greatly encouraged at all the colleges and larger schools. Professional colleges.

Of the training schools, one is specially maintained for training schoolmasters belonging to the Panchamas, or depressed castes, for work in the schools for those classes. The special institutions include schools or classes of medicine, engineering, telegraphy, printing, drawing, and dressmaking, two commercial schools, three industrial schools, four schools of music or singing, the Anjuman, and the School of Arts. The Anjuman was established in 1885 to ameliorate the condition of the Musalman poor of both sexes, and though intended chiefly as a technical school provides also for general education. It has a showroom for its productions in the Mount Road. The School of Arts was started by Dr. Hunter as a private concern in 1850, and was taken over by Government in 1855. It consists of two branches : one in which drawing, designing, modelling, and engraving are taught ; and another in which instruction is given in wood-carving, carpet-weaving, metal-work, and painting. All the students are required to attend the classes in the former. For some time special attention was paid in the school to the capabilities of aluminium as a material for household and other utensils, and one result of this has been the establishment of a private industry in the manufacture of articles from this metal. The possibilities of chrome-tanning are now being investigated. Special schools.

The total number of pupils under instruction in the city in 1880-1 was 23,650 ; in 1890-1, 34,948 ; in 1900-1, 42,348 ; and in 1903-4, 47,236. Of these last, 11,472 were girls. It far surpasses all the other Districts in the literacy of its people. Of the males 36 per cent. and of the females 9 per cent. can read and write, while in the Presidency as a whole the corresponding figures are 12 and less than one. Fourteen per cent.

of the inhabitants can read and write English, compared with less than 1 per cent. in the Presidency generally. Of the girls in the upper stages of the schools and in the colleges the majority are Europeans, Eurasians, and native Christians. Of the 99 women who have up to the present passed the F.A. Examination, 66 were Europeans, 26 native Christians, 6 Brāhmans, and the remaining one a non-Brāhman Hindu. In 1905 two European ladies and one native Christian passed the B.A. examination. Of late years efforts have been made to remove students in the town from the unwholesome associations of native hotels by providing them with properly regulated hostels or boarding-houses. Four of these were built by Dr. Miller, partly at his own expense, in connexion with the Christian College. Five others are attached to the Teachers' College, another is connected with the Panchama training school already referred to, and another, the Victoria Hostel, stands behind the Presidency College in Chepauk. This is the largest of all, but it is far too small to hold the many applicants for admission. Of 13 lakhs spent upon all the educational institutions in the city in 1904, about 36 per cent. was devoted to the colleges, 38 per cent. to secondary schools, 17 per cent. to training and special schools, and 9 per cent. to primary education. Of the total, 39 per cent. was met from general revenues, 36 per cent. from fees, and 25 per cent. from endowments and other sources.

Newspapers and periodicals. Madras has five daily newspapers. Two of these, the *Madras Mail* and the *Madras Times*, are edited by Englishmen; and the three others, the *Hindu*, the *Madras Standard*, and the *Indian Patriot*, are edited by natives. In addition, there are 10 weekly papers and 31 papers and magazines published bi-weekly, monthly, or quarterly. Of these, as many as 14 are devoted to religious subjects. Others represent law, education, and social reform, the planters, the Eurasians, and the Muhammadans; while three of them, the *Christian College Magazine*, the *Madras Review*, and the *Indian Review*, are magazines of repute which deal with current and literary topics. The latest venture is the *Indian Ladies' Magazine*, written for native ladies and edited by one of them.

Medical. Madras possesses nine hospitals and five dispensaries. Of the former, five—namely, the General, Maternity, Ophthalmic, Leper, and Voluntary Venereal (Women's) Hospitals—are maintained from Provincial funds; one, the Royapettah Hospital, by the Corporation; while three—namely, the Victoria Caste and Gosha Hospital for Women, Rājā Sir Rāmaswāmi Mudaliyār's

Maternity Hospital, and the Native Infirmary attached to the Monegar Choultry—are supported by private subscriptions, aided in the case of the two latter by grants. Of the five dispensaries one is maintained by Government, two by the municipality, and the other two by public subscriptions and grants. The General and Maternity Hospitals are exceptionally well found and well managed. The total number of beds available in these institutions is 1,371, of which 473 are in the General Hospital. In 1903 an aggregate of 19,000 in-patients (7,000 at the General Hospital) and 233,000 out-patients (61,000 at the General Hospital) were treated in them, and 18,000 operations (6,000 at the General Hospital) were performed. The total expenditure was Rs. 5,40,000, of which Rs. 4,35,000, or 80 per cent., was provided by Government, and Rs. 32,000 by the municipality. The main items were establishment (Rs. 1,58,000), buildings (Rs. 1,33,000), miscellaneous charges (Rs. 1,07,000), and diet (Rs. 92,000).

The Lunatic Asylum in Kilpauk, which is in many ways a model institution, had an average daily population of 320 males and 106 females in 1904. Of the 136 admissions in that year 16 were Europeans or Eurasians and the remainder natives. The cost of its maintenance was Rs. 1,05,000, of which Rs. 36,000 was spent on establishment and Rs. 28,000 on diet of patients.

Vaccination. Vaccination is compulsory in the city and is attended to with more than usual care, the number of successful operations in 1903–4 being 52 per mille of the population, compared with an average for all municipalities of 50 per mille. At Guindy, near Madras, is the King Institute of Preventive Medicine, from which animal vaccine is supplied in sealed tubes throughout the Presidency, and where bacteriological work and the preparation of various sera are also carried on.

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CHINGLEPUT DISTRICT

Boundaries, configuration, and hill and river systems.

Chingleput District (*Sengalunīrpattu*, or 'water-lily brook').—District on the east coast of the Madras Presidency, lying between 12° 15′ and 13° 47′ N. and 79° 34′ and 80° 21′ E., with an area of 3,079 square miles. It is bounded on the east by the Bay of Bengal; on the north by Nellore; and on the west and south by North and South Arcot; and it encloses within its limits Madras City, the capital of the Province. The District is flat and dreary near the sea, but undulating, and in some places even hilly, elsewhere. The scenery contains little to attract the eye in any of the three northern *tāluks* of Saidapet, Ponneri, and Tiruvallūr, except where, in the extreme north of the last, the Nāgalāpuram hills and the ridge the highest peak of which is the well-known Kambākkam Drug contribute a few picturesque effects. These are the only hills of any size in the District. The height of Kambākkam Drug is 2,548 feet above sea-level, and that of the Nāgalāpuram hills about 2,500 feet. The Conjeeveram *tāluk* is also marked by little to relieve the monotony. Parts of the Chingleput and the Madurāntakam *tāluks* are, however, quite pretty, consisting of undulating plains varied by small ridged or conical hills running up to an elevation of some 600 feet.

The river system of the District consists of a series of streams which flow across it from west to east into the Bay of Bengal. The largest of these is the Pālār, which rises in the State of Mysore, flows through North Arcot, enters Chingleput some miles to the west of Conjeeveram, and after running right across the District in a south-easterly direction falls into the sea 3 miles to the south of Sadras. The next most important river is the Korttalaiyār, which flows from the surplus weir of the great tank at Kāveripāk in North Arcot District, similarly traverses Chingleput from west to east, and falls into the backwater at Ennore, a few miles north of Madras city. The Araniya Nadī or Arani river enters the District in the north of the Tiruvallūr *tāluk*, where it is known as the Nāranavaram. After flowing across the centre of the Tiruvallūr and Ponneri *tāluks* it reaches the sea near Pulicat. The Cooum (Kūvam) is formed by the surplus water of the Kūvam tank, and after

flowing through the Saidapet *tāluk* and Madras city falls into the sea near Fort St. George. Besides these there are the two smaller streams of the Cheyyār and the Adyar. The antagonism between the languid waters of these rivers and the sand-laden currents of the Bay have resulted in the formation of a string of brackish backwaters along the coast, the chief of which are the Pulicat and Ennore Lakes. These are connected by the BUCKINGHAM CANAL. None of them is navigable, and for most of the year the smaller ones are dry.

Geologically the country is of some interest. The Archaean gneissic and plutonic rocks are to be seen emerging from beneath the younger sedimentaries in the south-western and southern parts of it. They include the typical examples of the charnockite series as developed at St. Thomas's Mount and Pallāvaram, where the acid or quartz-bearing form of the hypersthene granulite is found in contact with the basic or norite form. Presumably lying on the Archaeans, though the base is not seen, come representatives of the Upper Gondwāna plant-bearing shales in a small outcrop 25 miles west-south-west of Madras city, and other very small patches south of the Pālār river lying directly on the gneiss. They belong to the local series named the Srīperumbūdūr group, composed of white shales containing plants associated with sandstones and micaceous sandy shales and conglomerates; and they contain some ill-preserved ammonites and bivalves, as well as plants, which may indicate affinity with the Neocomian rather than the Jurassic series. They are nearly horizontally disposed, of no great thickness, and probably represent the lower part of the Upper Gondwānas as developed a short distance to the north-west in North Arcot District. From a boring in Place's Garden near Madras it would seem that Lower Gondwānas (with a remote chance of coal) underlie the Upper Gondwānas, at least locally. Unconformably above the Upper Gondwānas and overstepping on to the gneisses in other places comes a very thin bed of low-level conglomeratic laterite, from 10 inches to 12 feet thick, together with laterite red sands and loams. These occur in patches (as in the Red Hills north-west of Madras city), and are the remains of a once continuous horizontal formation, probably of marine origin, lying from 500 to 600 feet above sea-level and cut through by recent river alluvium. They contain stone (quartzite) implements. Alluvial areas in the river-beds and along the coast, together with blown sand, complete the list of surface deposits. Geology.

The flora of Chingleput presents few points of interest. The Botany.

rainfall and altitude of the District are almost uniform, and thus the plants found throughout it resemble those of similar areas on the east coast. The forest trees and the crops are referred to below. The most noticeable trees among the villages are the palmyra palm and the casuarina. The latter has been planted extensively all along the belt of sandy soil which fringes the sea-coast.

Fauna.

Wild animals of the larger kinds are scarce. An occasional tiger, a few leopards, and some bears are found in the north of the Tiruvallūr *tāluk* among the hills, and also spotted deer and *sāmbar* in small numbers. Wild hog are fairly numerous there, and in the low hills and scrub jungle in the Chingleput *tāluk*. The District is famous for its snipe-shooting, which is systematically exploited by residents of Madras, and florican are more than usually common.

Climate and temperature.

The climate, considering the latitude, is temperate, and resembles that of other coast Districts in the south of the Province in presenting no extremes of heat or cold. The mean annual temperature of Madras City, which lies in the centre of the District, is 83°. It is a healthy tract on the whole, though fever is endemic in the west in some places, and in the east leprosy and elephantiasis are prevalent.

Rainfall.

The rainfall is neither copious nor very regular. The annual average fall throughout is 45 inches, but this varies much in different localities. The supply is greatest (51 inches) in the coast *tāluks*, next heaviest in the adjoining areas, and lightest (43 inches) in the westernmost parts. The reason for these variations is that the greater part of the annual supply is received from the north-east monsoon, and this has parted with some of its moisture by the time it has traversed the eastern side of the District. No rain sufficient for cultivation usually arrives in April and May. In the south-west monsoon (June to September) the early 'dry' (unirrigated) crops are grown. The most important cultivation is that carried out with the north-east rains, which fill the tanks (artificial irrigation reservoirs) and enable the 'wet' (or irrigated) crops to be put down. The District has suffered comparatively little from famine, but has had more than its share of disastrous hurricanes and cyclones. Accounts of some of these will be found in the article on MADRAS CITY.

istory.

From the earliest times of which there is any record up to the middle of the eighth century, Chingleput formed part of the ancient kingdom of the Pallavas, whose capital was Kānchi, the modern Conjeeveram. The authorities are divided as to

who these Pallavas were and whence they came. During the height of their power, about the beginning of the seventh century, they ruled over a great kingdom extending from the Narbadā and Orissa in the north to the Ponnaiyār river in the south, and from the Bay of Bengal on the east to a line drawn through Salem, Bangalore, and Berār on the west. The famous monolithic temples and *raths* at Mahābalipur, better known as the SEVEN PAGODAS, on the coast nearly due east of Chingleput town, are attributed to them.

About 760 the Pallavas became extinct as a ruling power, and Chingleput then passed under the Western Gangas of Mysore. The Rāshtrakūtas of Mālkhed, in the present Nizām's Dominions, invaded the District and took Kānchi in the beginning of the ninth and again in the middle of the tenth centuries. Shortly afterwards Chingleput became part of the country of the CHOLAS, whose greatest ruler, Rājārājā Deva, was then at the height of his power. On the decline of the Cholas about the middle of the thirteenth century, the District passed under the Kākatīyas of Warangal, and a line of later Cholas ruled over Kānchi and the surrounding country, with one slight interruption, as their vassals. About 1393 it was absorbed into the kingdom of VIJAYANAGAR, which was then extending its hold over all Southern India, and with little or no interruption continued to be part of that realm for over a century and a half.

On the overthrow of the Vijayanagar dynasty by the combined Muhammadan kings of the Deccan at the battle of Tālikotā in 1565, it came into the hands of one of the deputies of the fallen kingdom, who continued to pay allegiance to the fugitive king of Vijayanagar after his flight to CHANDRAGIRI, in North Arcot District. From a later deputy the English received, in 1639, the grant of the site on which Fort St. George now stands. Shortly afterwards the whole of south-east India was overrun by the Kutb Shāhi Sultāns of Golconda. The Naiks (as the deputies were called) of Chingleput remained the vassals of these new conquerors, and their dealings with the English at Madras are prominent points in the early history of Fort St. George.

On the fall of Golconda in 1687 Chingleput passed, with the rest of the Carnatic, under the rule of the Mughal emperors at Delhi. During the Carnatic Wars of the eighteenth century Chingleput and other towns and villages in the District were the objects of repeated attacks, and figure constantly in the story of these troublous times. In 1763 the District, which

then included some of the villages now forming part of Madras City, was granted in perpetuity as a *jāgīr* to the East India Company by Muhammad Alī, the Nawāb of Arcot, in consideration of the services rendered to him by the English, and in 1765 the grant was confirmed by the Mughal emperor. The old records always call the District 'the Jāgīr.' For the next fifteen years it was leased annually to the Nawāb himself, and during that time Haidar Alī, who had by then usurped all sovereign authority in Mysore, devastated it twice, in 1769 and again in 1780. On the assignment of the revenues of the Carnatic to the English by the Nawāb of Arcot in 1781, it was placed under the charge of the Committee of Assigned Revenues. In 1801 it became part of the British dominions in India on the cession of the Carnatic in full sovereignty to the Company by the Nawāb. Besides the territory thus acquired, Chingleput includes the town of Pulicat, the earliest Dutch possession in India (founded in 1609), which was ceded to the British in 1825.

Archaeology.

The oldest objects of archaeological interest in the District are the rude stone monuments, relics of the Kurumbas and earlier prehistoric races, which are found in considerable numbers. The monolithic buildings at the SEVEN PAGODAS, the legends connected with ST. THOMAS'S MOUNT, the old Dutch Settlements at PULICAT and SADRAS, and the antiquities at CONJEEVERAM are referred to in the respective articles on these places.

The people.

The District is made up of six *tāluks*, the head-quarters of which are at the places from which they are respectively named. Statistics of these, for the Census year 1901, are appended :—

Tāluk.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Tiruvallūr	744	1	464	253,973	341	+ 7·2	13,724
Ponneri	347	1	240	136,597	394	+ 11.6	7,803
Saidapet	342	6	254	262,478	767	+ 16·9	24,869
Chingleput	436	2	298	155,213	356	+ 13·1	13,092
Conjeeveram	514	2	364	225,300	438	+ 3·0	22,416
Madurāntakam	696	3	524	278,561	400	+ 5·9	19,966
District total	3,079	15	2,144	1,312,122	426	+ 9·1	101,870

The District head-quarters are at SAIDAPET. Chingleput is the smallest District in the Presidency except Madras City,

the Nīlgiris, and Anjengo; but the density of the population of every *tāluk* is considerably above the average for the Presidency as a whole, and in Saidapet, which surrounds Madras and contains several villages which are practically suburbs of that city, it is as high as 767 persons per square mile. The total population of the District in 1871 was 938,184; in 1881, 981,381; in 1891, 1,202,928; and in 1901, 1,312,122. Since the first of these years it has increased by one-third, and in the last decade the rate of growth was above the average for the Province and in the Saidapet *tāluk* was as high as 17 per cent. Immigration from North Arcot is considerable, but is more than counterbalanced by the movement from the District itself into Madras city. The villages in Chingleput are usually small, averaging only 524 inhabitants apiece. It contains fifteen towns, of which two, CONJEEVERAM (population, 46,164) and CHINGLEPUT (10,551), are municipalities, and the others are Unions.

Of the people of Chingleput, 1,255,257, or 96 per cent., are Hindus, 30,010 are Musalmāns, and 26,466 are Christians. These last increased at the rate of 40 per cent. in the decade 1891–1901. The District is one of seven in the Presidency in which, for some reason which has never been satisfactorily explained, females, contrary to the usual rule, are fewer than males. Though it really belongs to the Tamil country, it marches with Telugu Districts on the north and west, and in its north-western *tāluk*, Tiruvallūr, Telugu is the prevailing vernacular. In the District as a whole, nearly a fourth of the people speak Telugu, and about three-fourths Tamil.

Their castes and occupations.

Owing to its proximity to Madras city, Chingleput contains a high proportion of Europeans and Eurasians. The Hindus include 1,021,000 Tamils and 217,000 Telugus. Of the former as many as 321,000 belong to the low caste of Paraiyans, and the high proportion of this community to the total population is one of the most notable facts in the social constitution of the District. The Pallis—who, like the Paraiyans, are mainly agricultural labourers—also occur in great strength, numbering as many as 262,000. Other castes which, though not remarkable numerically, are found in greater strength in Chingleput than elsewhere are the Pandārams, a class of Saivite priests and religious beggars many of whom officiate at the domestic ceremonies of the Vellālās; the Pattanavans, fishermen; the Vedans, who are *shikāris* and agriculturists; and the Kannadiyans, a Kanarese caste of shepherds and cattle-breeders most of whom are Lingāyats by sect.

The District is notorious for the disputes which occur in it, and especially at Conjeeveram, between the Vadagalai and Tengalai sub-sects of the Vaishnavite Hindus. The chief points of doctrinal difference between them are as follows: The Vadagalais prefer to read sacred books and chant in Sanskrit, while the Tengalais, although revering that language, attach greater value to their own vernacular. The Vadagalais believe the attainment of salvation to be aided by devotions, ritual, and good works; the Tengalais assert it to be of grace alone. The former worship Lakshmi, the consort of Vishnu, as a goddess equal in power to her husband; the latter condemn this practice and insist that the goddess can only intercede. The Vadagalais begin their prayers with praise of Vedānta Desika (a saint born at Conjeeveram), while the Tengalais begin theirs with praise of the saint Manavālamāmuni.

The occupations of the people of Chingleput differ little from the normal. The District is somewhat less exclusively agricultural than the average, but the reason for this is merely that there are numerous fishermen along the coast.

Christian missions.

Of the 26,466 Christians in the District in 1901, 23,714 were natives of India and 2,752 Europeans and Eurasians. Two-thirds of them are Roman Catholics. The Wesleyan, United Free Church of Scotland, and London Missions are the chief Protestant missions at work. The Wesleyan Mission carries on its operations in the Madurāntakam and Saidapet *tāluks*, and the Free Church Mission in Chingleput, Conjeeveram, and Ponneri. These bodies maintain a large number of schools for Hindus and Panchamas (depressed castes) of both sexes. Their work among the Panchamas is partly religious, partly social, and partly educational. They have lent their assistance to enable thrifty individuals to hold land, the missions themselves in some cases buying or holding this for them; and the United Free Church Mission has founded three peasant settlements to improve the condition of the community. The principal of these is Melrosapuram, within an easy drive of Chingleput, which was started in 1893. Here is a school in which boys are taught agriculture, the extraction of plantain fibre, rope-making, and blacksmiths' work, so that they may be able to mend their implements. The valuable experiments in well-irrigation which have been made here are referred to below.

General agricultural conditions.

There are three classes of soil in the District—black, red, and arenaceous—each of which has three varieties, namely, loam, clay, and sand. In each class the loam is considered the best and the sand the worst. The black and the red soils

are well suited for cultivation, the black being generally the more fertile of the two; but the arenaceous soil, which occurs in a wide strip all along the sea-shore, is fit only for the plantations of casuarina which abound in the coast villages. The red soil predominates in the northern *tāluks* of Tiruvallūr, Ponneri, and Saidapet, while the black soil is commonest in the south in Chingleput, Conjeeveram, and Madurāntakam. The southern portion of the District is consequently more fertile than the northern. September is the month in which the sowing of the crops chiefly takes place, one-fourth of the 'dry' land and nearly one-third of the 'wet' land being planted then. Next in importance for sowing comes October.

Chief agricultural statistics and principal crops.

The District is principally *ryotwāri* land, but *zamīndāri* and 'whole *inām*' areas cover as much as 950 square miles out of the total of 3,079. For these, detailed statistics are not available, and the area for which particulars are on record is 2,435 square miles. In 1903-4 this was made up as shown below, areas being in square miles:—

Tāluk.	Area shown in accounts.	Forests.	Cultivable waste.	Cultivated.	Irrigated.
Tiruvallūr	456	104	38	216	121
Ponneri	308	6	9	172	96
Saidapet	311	14	10	208	101
Chingleput	382	65	31	164	95
Conjeeveram	447	8	11	276	150
Madurāntakam	531	17	35	299	139
District total	2,435	214	134	1,335	702

Of the cultivable waste a large proportion is very poor soil, but a considerable area may be expected to come gradually under cultivation as population increases.

The staple food-grains of the District are rice and *rāgi* (*Eleusine coracana*), the areas under which were 927 and 97 square miles respectively, or, taken together, three-fourths of the total extent sown in 1903-4. The other crops chiefly cultivated are *varagu* (*Paspalum scrobiculatum*), indigo, gingelly, *cambu* (*Pennisetum typhoideum*), and ground-nut. *Varagu* is mostly cultivated in the Madurāntakam *tāluk* on inferior sorts of 'dry' land; indigo, *cambu*, and ground-nut chiefly in the Tiruvallūr *tāluk*; and gingelly in Conjeeveram and Madurāntakam.

Improvements in agricultural practice.

Methods of cultivation are the reverse of careful. Much of the soil is poor, and much of the land is held by absentee landlords, who sublet it to cultivators whose means are small and

whose tenancy is insecure. Good farming is thus a rarity, manuring and weeding are neglected, and much of the District has a poverty-stricken appearance. At Saidapet is the Government Agricultural College, but it cannot be claimed that the ryots have profited by its teachings. In one direction, however, there are signs of improvement, and that is in the number of wells which have recently been dug or repaired. In the sixteen years ending with 1904 more than $5\frac{1}{2}$ lakhs was borrowed by the ryots under the Land Improvement Loans Act for this purpose. The farm-school at Melrosapuram belonging to the Free Church Mission, which has already been alluded to, has conducted valuable experiments on the capabilities of wells equipped with pumping machinery, which ought to do much to extend this form of irrigation. A well on the farm was fitted with an oil-engine of $3\frac{1}{2}$ horse-power and a pump; it was deepened and four adits made at the bottom; and a new well was sunk close by to serve as a storage basin and joined to the other by another adit. By these means the inflow was greatly increased, and with the help of the pump the well was made to irrigate twenty acres instead of five. It is considered certain that this area is capable of further extension. Valuable crops such as sugar-cane and plantains are now grown by this means, and the value of the produce is from eight to twenty times what it formerly was. Large quantities of manure and tank silt are used on the land. Around the well are hundreds of valuable fruit trees, which give the place a flourishing appearance. The ryots of the District have taken much interest in these experiments; and Government has sanctioned the establishment in other places of five schools similar to that at Melrosapuram, and is also conducting further experiments in the use of pumping machinery in connexion with wells.

Cattle and sheep.

No breed of cattle is peculiar to Chingleput. Those raised locally are mostly inferior, as there are few good grazing-grounds. The best cattle are imported from the adjoining Districts. The goats and sheep are of the ordinary varieties.

Irrigation.

Of the total area of *ryotwāri* and 'minor *inām*' lands cultivated in 1903–4 (1,335 square miles), 702 square miles, or more than half, were irrigated. By far the larger part of this extent (619 square miles) was watered from tanks or artificial reservoirs. These number 2,553, and are mostly rain-fed. Some of them, however, are supplied from channels led from the rivers mentioned above. The most important of these are the Red Hills and Cholavaram tanks, fed from the Korttalaiyār,

which irrigate 9,054 acres in the Ponneri and Saidapet *tāluks*, and the former of which supplies Madras city with water; the Vallūr tank in Ponneri, supplied from the Arani river; the Chembrambākam tank in Saidapet, which is fed from the Cooum and irrigates 18,000 acres in 37 villages; and the tank at Uttaramerūr, fed by the Cheyyār. Other tanks of importance are those at Madurāntakam, Karunguli, Edamichi, and Periamkolam in the Madurāntakam *tāluk*; at Srīperumbūdūr, Tenneri, and Manimangalam in the Conjeeveram *tāluk*; and at Tinnanūr and Ambattūr in Saidapet. Besides these tanks, 158 river and 340 spring channels irrigate about 50,000 and 7,350 acres respectively. Wells form an additional source of irrigation, and there are 32,650 in the District, most of which are unfailing except in years of severe drought. Water is drawn from them either by *picottahs* (long wooden levers with a bucket at one end, which are actuated by two or more men walking backwards and forwards along them), or by *kappilais* or *mots* (leathern buckets pulled up by a rope and pulley, worked by bullocks).

Forests.

The District has little real forest growth. There are 94 'reserved' forests, occupying 214 square miles; but they mostly consist of low scrub, except the forests about the Kambākkam and Nāgalāpuram hills in the Tiruvallūr *tāluk*, where there is some timber. The latter make up nearly half the forest area in the District. They have been under conservation for eighteen years, and abandoned fields included within the protected areas have become clothed with a growth of good material, which is steadily improving both in condition and in size. The other Reserves, lying in the plains, consist mostly of inferior trees and small shrubs, only capable of yielding faggot-wood, manure-leaves, and bark. The greater part of these (65 square miles) are in the Chingleput *tāluk*. The chief value of the Reserves at present is to serve as a grazing-ground for cattle. The total net revenue realized from them in 1903-4 was Rs. 13,000. They are administered by a District Forest officer, under whom are two range officers.

Minerals.

The minerals of the District are few. Some years ago, on the hills round Chingleput, a good felspar, useful for glazing pottery, used to be found. The best variety was of a fresh pink colour passing into a deep purple, variegated and glistening with a curious play of colours. It is the same kind as that which used to be imported from Sicily into England. Another variety found in the same locality was called Labrador felspar. Its colours were dark, and the stone was used in Europe as an

ornamental pebble. Among the hills to the north and north-west of Chingleput has been found a very scarce variety of granite. The colours were pale green, flesh-colour, grey, and black and white, and they became very brilliant when polished. Unfortunately it existed in very small quantities, but its value may be gathered from the fact that it used to command a sale in Europe in pieces as small as 4 inches by 2. It was used for pedestals for busts and for making small polished table-ornaments. No one has taken the trouble to work either the felspar or the granite, and their very existence appears to have been forgotten. In the clayey estuarine beds to the north of Madras city concretionary masses of gypsum and crystals of selenite occur, but not in any great abundance. Supplies for making plaster of Paris for use in the School of Art at Madras have, however, been obtained from this source.

Arts and manufactures.

Next to agriculture, cotton- and silk-weaving form the most important occupations of the people. Statistics show that there are over 11,000 looms in the District, more than half of them being in the Conjeeveram *tāluk*. Excellent muslins were formerly made at Arni in the Ponneri *tāluk*, but the industry has died out. Superior *sārīs* of silk and cotton, such as the native women wear, are made at Conjeeveram. Coloured check fabrics are manufactured in some villages, especially in the northern part of the Tiruvallūr *tāluk*, and are exported to Penang. Similar checks and other stuffs are also made in the Chingleput Reformatory School.

There are some tanneries, but the industry (which a few years ago was of considerable importance) is languishing on account of the adoption of the chrome process of tanning in America and elsewhere. The skins are now sent to Madras after being merely dried, and are exported thence. The trade is chiefly in the hands of Musalmāns.

A cigar factory at Guindy, owned by Messrs. Oakes & Co., employs 800 hands. Ten small paper-making establishments at Sembiem near Madras provide work for ten or a dozen persons each. The District also contains nearly 400 indigo vats and 500 of the ordinary country oil mills. The Madras Railway has large workshops at Perambūr, just outside the limits of Madras city, in which 4,500 persons are employed.

Commerce.

Though the District has a long seaboard, this possesses no single place which can be called a harbour or which offers any facilities for shipping. There are therefore no recognized ports within its limits, and its small sea-borne trade is conducted through the port of Madras. Having no manufactures and no

natural products of importance, and being a comparatively infertile area, the District has but little commerce of any kind. Its chief trade consists in supplying the population of Madras city with the ordinary local products, such as dried cow-dung fuel, firewood, grain, vegetables, meat, straw, grass, sand, laterite, bricks, and so forth. In return it imports from Madras the usual foreign goods, such as kerosene oil, European piece-goods, and metals, which are required by the villagers. There can hardly be said to be any real centres of trade. Unimportant weekly markets are held at Uttaramerūr in the Madurāntakam *tāluk*, at Wālājābād in Conjeeveram, and at Vallūr in Ponneri. The money-lending of the District is largely in the hands of Mārwāris, who are prominent in such places as Saidapet, Poonamallee, and Pallāvaram. Much of it is also done by a number of mutual benefit and loan societies registered under the Indian Companies Act, the nominal capital of which is as much as Rs. 5,88,000.

Railways and roads.

Since Chingleput surrounds Madras it is traversed by the three lines, the south-west and north-east sections of the Madras Railway and the South Indian Railway, which start from that city. It is accordingly well provided with railway communication. The south-west line of the Madras Railway (standard gauge) enters the centre of the District at Siruvallūr, a few furlongs from the Perambūr railway station on the confines of Madras city. It runs due west through the Saidapet and Tiruvallūr *tāluks*, and then passes into North Arcot to the junction of Arkonam. This line was opened in 1856. The entire length of 27½ miles within the District has a double line. The East Coast line of the Madras Railway (also on the standard gauge), which is a state railway opened in 1899 and worked since 1901 by the Madras Railway Company, enters the District 2 miles from Tondiarpet, a suburb in the north of Madras city, runs due north as far as Ennore, and thence passes north-westwards through the Ponneri *tāluk*, crossing the Korttalaiyār and Arani rivers by fine bridges, into Nellore District. The length of the line within the District is 28½ miles. The main line of the South Indian Railway (metre gauge) enters Chingleput from the west of Madras city and runs south through the Saidapet and Chingleput *tāluks*, crosses the Pālār river by a girder-bridge of eighteen spans of 120 feet each, and passes through the Madurāntakam *tāluk* and on into South Arcot. The portion within the District is 61 miles in length, and was opened in 1876. A branch line connects Chingleput with Conjeeveram, and runs on towards Arkonam,

the total length of this connecting chord within the District being 29 miles. All the three lines run special office trains for the benefit of officials and others who have daily business in Madras city.

The construction by private enterprise of tramways on five roads in the District, four of which are close to Madras, has recently been sanctioned. These tramways will be on Ewing's mono-rail system, and will be worked by horse and bullock power. One of them, from Poonamallee to the Avadi station on the Madras Railway, has been opened.

The District is well provided with roads; all of them are maintained by the local boards. The total length is 717 miles, of which 659 miles are metalled. There are avenues of trees along 594 miles. The chief lines are the southern, western, and northern trunk roads. The first of these leads southwards into South Arcot District, running parallel to the South Indian Railway, through the Saidapet, Chingleput, and Madurāntakam *tāluks*. The second runs westward from Madras through the Saidapet and Conjeeveram *tāluks*, and leads to North Arcot District, while the third passes northwards into Nellore District through Saidapet and Ponneri. Owing to the situation of Madras city in the heart of the District, the traffic on all the trunk roads is very heavy.

Along the whole of the coast of Chingleput runs the Buckingham Canal. It utilizes the backwaters with which the shore is fringed, and places the District in direct communication by water with South Arcot to the south and, on the north, with all the coast Districts as far as Godāvari.

Famine. Chingleput suffered four times from famine in the eighteenth century—in 1733, owing to general neglect of its irrigation works; in 1780, in consequence of Haidar's invasion; in 1787, from the failure of the rains; and in 1785, as the result of a great cyclone which damaged the tanks and channels—and five times since the beginning of the last century: namely, in 1807, 1824, 1833, 1876–8, and 1891. It has also in several other years (notably in 1867–8, 1868–9, and 1900–1) been affected by less serious scarcities. Its proximity to the seaboard and its numerous railways and the resultant facilities for the supply of grain render improbable the occurrence of any actual dearth of food; but though it is not included within the famine zone of the Presidency, the crops are always more or less precarious. This is more especially the case owing to the facts that a large area of land usually produces rain-fed rice which requires good showers to save it from failure, and

that the irrigation works nearly all depend upon local rainfall and dry up if the season is unfavourable. The six largest irrigation works, for example, will in ordinary seasons supply 55,400 acres, but in a bad year they are unable to protect more than 15,000 acres. The minor irrigation works protect about 335,400 acres in ordinary years, but in a year of prolonged drought not more than 41,000. The area protected by wells is also small. The worst famine on record was that of 1876-8, the Great Famine, as it is called. The average number of persons relieved daily in the District during the twenty-two months for which this lasted was 40,000; and in September, 1877, the figure was as high as 116,000, or over 12 per cent. of the total population. Probably, however, a proportion of these were people from other Districts; stories had circulated freely among the natives of the ample supplies of food available in Madras city, and they flocked thither in thousands through Chingleput.

District subdivisions and staff.

The *tāluks* are grouped for administrative purposes into three subdivisions, one of which is in charge of a member of the Indian Civil Service, each of the other two being under a Deputy-Collector. The Civilian takes the Chingleput subdivision, comprising the Chingleput, Madurāntakam, and Conjeeveram *tāluks*; one of the Deputy-Collectors the Saidapet subdivision, consisting of the Saidapet *tāluk*; and the other the Tiruvallūr subdivision, which includes Tiruvallūr and Ponneri. A *tahsīldār* is stationed at the head-quarters of each of the *tāluks* and a stationary sub-magistrate also. In addition there are deputy-*tahsīldārs* (who are also sub-magistrates) at Poonamallee (Saidapet *tāluk*), Srīperumbūdūr (Conjeeveram *tāluk*), Uttaramerūr (Madurāntakam *tāluk*), and Satyavedu (Tiruvallūr *tāluk*). The superior staff of the District includes the usual officers, except that the Executive Engineer has his head-quarters at Madras city and has also charge of the Buckingham Canal. The Collector's office and residence is at Saidapet, the District Court is at Chingleput (where the District Medical and Sanitary officer also resides), and the Superintendent of police lives at St. Thomas's Mount.

Civil justice and crime.

Civil justice is administered by the District Court and four District Munsifs, stationed respectively at Chingleput, Conjeeveram, Poonamallee, and Tiruvallūr. A large proportion of the civil litigation is made up of suits under the tenancy law. These are more numerous than in any other District except three, the average annual number being about 1,250. Crime is usually light in Chingleput, the population not including any

large number of the criminal castes. Recently dacoities have increased considerably, but this is apparently due to temporary causes.

Land revenue administration.

Very little reliable information is available regarding the revenue history of the District before it was granted to the East India Company as a *jāgīr*. Under the Hindu sovereigns the crown received a share of the produce of each village or township, the government having nothing to do with individual cultivators. Under the Musalmāns the government's share of the produce was farmed out to renters to collect, and oppression and confusion were rampant. When the Company obtained the country, they at first rented it back to the Nawāb for a fixed sum. His management was as bad as any administration could be. Absurdly high estimates of the yield of each village were made, and reduced to some extent after fees had been paid to officials and to the Nawāb himself. In 1783 the lease to the Nawāb terminated, and the Company assumed direct management of the Jāgīr. It was placed under the control of the Committee of Assigned Revenues appointed to manage the Nawāb's possessions in the Carnatic. This committee divided it into fourteen farms, and rented them out on leases for nine years from 1783 to 1791 on progressive rents. But most of the renters failed before the fourth year and hardly any of them were able to tide over the sixth, and thereupon almost all of them were deprived of their farms. After the termination of these leases, the Jāgīr was parcelled out into smaller allotments and granted on triennial leases to the principal inhabitants. Under this system the revenue improved. In 1794 Mr. Lionel Place, whose name is still remembered in the District, was appointed Collector. He found that the receipts under the triennial leases did not represent the amount properly due to the Company; and he endeavoured to remedy matters by making a careful investigation of the sources of land revenue and a thorough inquiry into the rights and privileges of the ryots, as well as by bringing to light abuses in the collection and management of the assessment. He made a settlement of the land, based on the estimated out-turn of the produce of each village commuted into a money payment, and the principal landowners were held responsible for the collection and payment of the revenue to the Government. This system, however, involved a recognition by Government of inconvenient rights, and was not approved. In 1801–2 a permanent settlement was introduced; the country was divided into sixty-four estates, each paying a

revenue of from Rs. 7,000 to Rs. 16,000, the rights to the collections in which, subject to the payment of a fixed revenue to Government, were sold by auction. The fixed revenue was based on an examination of the condition of each village in respect to ploughs, live-stock, means of irrigation, and fertility, checked by reference to the accounts of ten years prior and subsequent to 1780 and the revenue of 1798–9. This system was, however, found to work very unsatisfactorily, as no allowance had been made for bad seasons, and the amounts which the ryots could pay had been estimated on so high a scale that the purchasers of the estates made little profit. In consequence many sales of their land took place, and considerable portions of the estates were resumed and again rented out village by village on triennial leases. In 1803 the *ryotwāri* system was introduced into a portion of the Jāgīr. The land was surveyed and classified into 'wet,' 'dry,' and 'garden,' the two former being further subdivided into grades in accordance with their soil. The rates of assessment were arrived at by taking the estimated average out-turn of each field in ten average years, deducting 20 per cent. for cultivation expenses, and then apportioning the residue equally between the Government and the ryot. The Government's share was then converted into a money equivalent. This arrangement was popular with the ryots, and the revenue of the tract where it was introduced rose by nearly one-third. In 1816 the favourable results of the survey and settlement of the Ceded Districts under Sir Thomas Munro induced the Government to order its introduction into the whole of this District, and it has continued in force up to the present day. Between 1870 and 1874 the District was systematically surveyed, and from 1872 to 1879 a resettlement was made. The survey showed that the area in occupation was 11 per cent. more than had been shown in the old accounts, and the settlement resulted in an increase of 4 per cent. in the total assessment. The average assessment on 'dry' land is Rs. 1–8–7 per acre (maximum, Rs. 4; minimum, 4 annas) and that on 'wet' land Rs. 4–6–8 per acre (maximum, Rs. 7–8–0; minimum, Rs. 2). The District will very shortly be resettled. The revenue from land and the total revenue in recent years are given in the table on the next page, in thousands of rupees.

Local boards.

Outside the municipalities of Chingleput and Conjeeveram, the local affairs of the District are managed by the three *tāluk* boards of Chingleput, Saidapet, and Tiruvallūr, under the immediate supervision of the District board. The areas in

charge of the *tāluk* boards correspond with those of the three revenue subdivisions given above. There are eighteen Unions, managed by *panchāyats* established under Act V of 1884, composed of the smaller towns and some of the villages. The expenditure of all these bodies in 1903-4 was Rs. 2,81,000, more than half of which was laid out on public works. The chief source of income was, as usual, the land cess.

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue .	21,90	16,02	19,76	23,51
Total revenue .	26,06	22,34	27,61	32,94

Police and jails.

The District Superintendent of police at St. Thomas's Mount has general control over the police throughout the whole District. There are 63 police stations (including out-posts), and the force numbers 687 constables working under 12 inspectors, besides 1,001 rural police. A force of reserve police at head-quarters numbers 119 men under an inspector.

No Central jail is maintained in the District, convicts being sent to the Madras Penitentiary or to the jails at Vellore and Cuddalore in North Arcot and South Arcot Districts respectively. There are ten subsidiary jails situated at the head-quarters of the various *tahsīldārs* and deputy-*tahsīldārs*, with accommodation for 305 prisoners. The Reformatory School for juvenile offenders at CHINGLEPUT is referred to in the separate article on that place.

Education.

According to the Census of 1901 Chingleput stands sixth among the Districts of the Presidency in regard to the literacy of its inhabitants, 7·8 per cent. (14·4 males and 1·0 females per cent.) being able to read and write. Education is most backward in the Ponneri *tāluk* and in the Satyavedu side of Tiruvallūr. The total number of pupils under instruction in 1880-1 was 14,329; in 1890-1, 24,724; in 1900-1, 34,308; and in 1903-4, 38,364. On March 31, 1904, there were 833 primary, 25 secondary, and 7 special schools, and 2 colleges, besides 422 private schools. Of the 867 institutions classed as public, 9 were managed by the Educational department, 38 by local boards, and 6 by municipalities, while 513 were aided from public funds, and 301 were unaided but conformed to the rules of the department. The majority of the pupils were in primary classes, and the number of girls beyond that stage was small. Of the total male population of school-going age 24 per cent. were in the primary grade of instruction, and of the female

population 4·8 per cent. Among Muhammadans the corresponding percentages were 56·8 and 7·6. There were 272 schools for Panchamas, containing 5,911 pupils. The special schools include the Reformatory School at Chingleput and the technical classes at St. Patrick's Orphanage at Adyar. The two colleges are the Teachers' College and the Agricultural College, both at Saidapet. The latter will shortly be removed to Coimbatore. A high school for practising purposes is attached to the former. The total expenditure on education in 1903–4 was Rs. 3,37,000, of which Rs. 73,000 was derived from fees. Of the total 41 per cent. was devoted to primary education.

Hospitals and dispensaries. There are fourteen dispensaries in the rural areas in the District, two hospitals in the two municipal towns of Conjeeveram and Chingleput, and a dispensary for women and children at Conjeeveram. The rural dispensaries are maintained by the local boards, which also contribute Rs. 2,500 and Rs. 1,400 respectively towards the up-keep of the municipal medical institutions. In the hospital at Conjeeveram is a maternity ward, which was built by Rājā Sir Rāmaswāmi Mudaliyār. The Chingleput hospital possesses an endowment in Government securities of Rs. 24,000. In 1903 these institutions treated 182,000 cases, of whom 900 were in-patients. The number of operations performed was 6,000. The expenditure was Rs. 36,000, the bulk of which was met from Local funds.

Vaccination. For some years vaccination in this District has not been progressing, but during 1903–4 there was some improvement, and the number of persons successfully vaccinated was 42,000, or 32 per mille of the population. Vaccination was made compulsory in 1902 in all villages within a radius of five miles from the head-quarters of each sub-magistrate. It is also compulsory in the two municipal towns of Chingleput and Conjeeveram, and in the cantonments of Pallāvaram and St. Thomas's Mount.

[C. S. Crole, *Chingleput Manual*, 1879.]

Tiruvallūr Subdivision.—Subdivision of Chingleput District, Madras, consisting of the TIRUVALLŪR and PONNERI *tāluks*.

Tiruvallūr Tāluk.—North-west *tāluk* of Chingleput District, Madras, lying between 13° 3′ and 13° 47′ N. and 79° 44′ and 80° 7′ E., with an area of 744 square miles. The population in 1901 was 253,973, compared with 236,939 in 1891. This is the most sparsely peopled *tāluk* in the District, the density being 341 persons per square mile. It contains one town, TIRUVALLŪR (population, 9,092), the head-quarters, and 464

villages. The demand on account of land revenue and cesses amounted in 1903-4 to Rs. 4,32,000. The soil of Tiruvallūr is generally either a sandy or a red ferruginous loam, neither of which is fertile. The annual rainfall averages 41 inches, the lowest in the District. The country is mostly flat and uninteresting; but in its north-western corner two ranges, known as the Nāgalāpuram and Satyavedu hills, relieve the monotony of the plain and furnish some hill scenery. Kambākkam Drug, the highest point among them, is 2,548 feet above sea-level. The Korttalaiyār, the Araniya Nadī or Arani river, and the Cooum irrigate the *tāluk*.

Ponneri.—Northern *tāluk* of Chingleput District, Madras, lying between 13° 11′ and 13° 34′ N. and 80° 2′ and 80° 21′ E., on the shore of the Bay of Bengal, with an area of 347 square miles. The population in 1901 was 136,597, compared with 122,418 in 1891. Ponneri contains the town of PULICAT (population, 5,448) and 240 villages (including the head-quarters, Ponneri). The demand on account of land revenue and cesses amounted in 1903-4 to Rs. 2,70,000. The Korttalaiyār and the Araniya Nadī flow through the *tāluk*, which is an uninteresting tract of nearly level land sloping towards the sea. The coast is fringed with a line of hillocks of blown sand, inside which are a series of backwaters connecting Ennore with the Pulicat Lake. The annual rainfall is 47 inches, or slightly more than the District average.

Saidapet Tāluk.—*Tāluk* and subdivision of Chingleput District, Madras, lying between 12° 51′ and 13° 14′ N. and 80° 0′ and 80° 20′ E., and touching the Bay of Bengal, with an area of 342 square miles. It surrounds on all sides but the east Madras city, a fact which has much influence upon its people and conditions. The population in 1901 was 262,478, compared with 224,472 in 1891, the increase of nearly 17 per cent. being due to its including several villages which are really suburbs of Madras. The density, 767 persons per square mile, is higher than in any other *tāluk* in the District. The demand on account of land revenue and cesses amounted in 1903-4 to Rs. 3,44,000. It contains six towns and 255 villages. SAIDAPET (population, 14,254) is the head-quarters of the *tāluk* and of the District. The other five towns are SEMBIEM (population, 17,567), TIRUVOTTIYŪR (15,919), ST. THOMAS'S MOUNT (15,571), POONAMALLEE (15,323), and PALLĀVARAM (6,416). The Korttalaiyār, the Cooum, and the Adyar rivers flow through the *tāluk*. Its general appearance is flat and uninteresting; but here and there occur hills of no great elevation, on many of which are perched

either a temple or a bungalow, which serve to relieve the monotony of the aspect.

Chingleput Subdivision.—Subdivision of Chingleput District, Madras, consisting of the CHINGLEPUT, CONJEEVERAM, and MADURĀNTAKAM *tāluks*.

Chingleput Tāluk.—*Tāluk* on the shore of the District of the same name, Madras, lying between 12° 29′ and 12° 54′ N. and 79° 52′ and 80° 15′ E., with an area of 436 square miles. The population in 1901 was 155,213, compared with 137,291 in 1891, the rate of increase in the decade, 13 per cent., being much greater than in the District as a whole. It contains two towns and 298 villages. CHINGLEPUT (population, 10,551) is the head-quarters, and TIRUKKALIKKUNRAM (5,728) is a sacred place of pilgrimage. The demand on account of land revenue and cesses amounted in 1903–4 to Rs. 2,82,000. The soil is mostly red ferruginous loam in the interior, and sandy towards the east. Generally speaking, the country is rocky and poor; but much of it is covered with low hills and scrub jungle, and in appearance it is consequently much more diversified and picturesque than the rest of the District. The only river irrigation is that from the Pālār, by means of spring channels, which bring the water directly to the fields, and flood channels, which fill the tanks when freshes come down. The greater part of the irrigation is from rain-fed tanks with small catchment basins, and is consequently precarious.

Conjeeveram Tāluk.—Westernmost *tāluk* of Chingleput District, Madras, lying between 12° 42′ and 13° 8′ N. and 79° 34′ and 80° 5′ E., with an area of 514 square miles. The population in 1901 was 225,300, compared with 218,671 in 1891, the rate of increase being smaller than in any other *tāluk*. It is the only part of the District in which the females are in excess of the males. There are two towns, CONJEEVERAM (population, 46,164), the head-quarters, and SRĪPERUMBŪDŪR (5,481), the station of a deputy-*tahsīldār*; and 364 villages. Of these last, Perambākkam possesses some historical interest. The demand on account of land revenue and cesses amounted in 1903–4 to Rs. 5,08,000. The soil of the *tāluk* is generally very inferior, being either stony or mixed with lime, gravel, or laterite. Its general appearance is tame and dreary in the extreme, there being only one or two low conical hills in the north-east. The general level rises gradually but considerably from the river Pālār towards the north and west. Along the northern bank of this river, palmyra, coco-nut, and tamarind trees have been largely planted. It is the chief source

of irrigation, but the Korttalaiyār also furnishes a supply to a few villages in the north-west. The water from the Pālār is led either by direct flow from the river or by spring channels dug on both banks. A channel called the Kambakkal also takes off at the dam which has been built across the river in North Arcot District to supply the Kāveripāk tank. This flows along a ridge on the western and northern sides of the *tāluk*, and fills chains of tanks, sometimes two, three, and four in number, on each side of its course.

Madurāntakam Tāluk.—Southern *tāluk* of Chingleput District, Madras, lying between 12° 15′ and 12° 46′ N. and 79° 38′ and 80° 9′ E., on the coast of the Bay of Bengal, with an area of 696 square miles. The population in 1901 was 278,561, compared with 263,137 in 1891. It contains three towns, MADURĀNTAKAM (population, 6,266), the head-quarters, UTTARAMERŪR (10,432), and CHEYŪR (5,210); and 524 villages. The demand on account of land revenue and cesses amounted in 1903–4 to Rs. 5,39,000. The Pālār and Kiliyār rivers run through the *tāluk*. The soil is generally a red ferruginous loam, but becomes sandy as the sea is approached. The *tāluk* is, however, more fertile than its neighbours. Its surface is generally undulating, and its northern portion is studded here and there with a few low hills, while towards the south run two long ridges, rising in places into small peaks, which stand one behind the other at distances, respectively, of 7 and 14 miles from the sea. A strip of land separated from the mainland by backwaters runs down the coast. It is called the Idaikalinādu, or 'land between backwaters,' and tradition says that it was parted from the rest of the *tāluk* by an irruption of the sea. A pious shepherd, says the story, was warned of the approaching deluge, took precautions accordingly, and was saved with his whole flock. The tract in question is covered with coco-nut trees, which yield the best nuts in this neighbourhood, largely exported to Madras.

Cheyūr.—Town in the *tāluk* of Madurāntakam in Chingleput District, Madras, situated in 12° 21′ N. and 80° E., 13 miles south-east of Madurāntakam town. It is the chief place in the Cheyūr *zamīndāri* and a Union. Population (1901), 5,210. Cheyūr contains three temples, dedicated to Kailāsanāthar, Subrahmanya, and Vālmīkanāthar, in which are valuable inscriptions relating to the Chola dynasty. It also contains extensive salt-pans. A weekly fair is held every Thursday.

Chingleput Town.—Head-quarters of the *tāluk* of the same name in Chingleput District, Madras, situated in 12° 41′ N.

and 79° 58′ E., 36 miles south-west of Madras city, and half a mile from the northern bank of the Pālār. Population (1901), 10,551. It owes its importance to the fact that it is a junction on the railway and the head-quarters of the District Court, the divisional officer, the District Medical and Sanitary officer, a District Munsif, and a *tahsīldār*, though it merely consists of several small villages which have been clubbed together to form a municipality. The fort dates from the sixteenth century, and it was once, together with Chandragiri in North Arcot, the capital of the fallen Vijayanagar kings after their dynasty had been overthrown by the Musalmāns at the battle of Tālikotā in 1565. A local chief subject to these kings granted the Company in 1639 the land on which Fort St. George now stands. Tradition speaks of a certain Timmarājā, possibly the minister of that name of the Vijayanagar king Krishna Deva, as the founder of the fort. Its strength lay largely in its swampy surroundings and the lake which flanks one side. The Muhammadans eventually seized it, and later on the French acquired possession of it in 1751. Clive bombarded and took the fort from the French in 1752; and throughout the campaign it continued of the first importance to the English, serving now as a place of confinement for the French prisoners, now as a dépôt for war material, and again as a centre for operations against the turbulent chieftains of the neighbourhood. After the reduction of Fort St. David, the Madras Government, apprehensive of an attack on Madras, called in all garrisons and stores from outlying forts; and Chingleput was thus abandoned in 1758. A juster view of its importance soon, however, persuaded the Government to reoccupy it, and while the French were advancing from the south a strong garrison was thrown into it from Madras. Lally, the French general, arrived just too late, and, finding it impregnable except by a regular siege, made the mistake of leaving it in his rear and passing on to Madras. During the siege that followed the garrison of Chingleput rendered invaluable assistance, not only by securing the country north of the Pālār, but by sallying out with disastrous effect upon the rear of the investing enemy. In 1780 the British troops, after the destruction of Colonel Baillie's force, found refuge here; and during the wars with Haidar Alī of Mysore, Chingleput was once taken by the enemy and reoccupied by the British, and twice unsuccessfully besieged. A cave, a mile east of Chingleput, which was originally intended for a Buddhist hermit's cell, has now been made into a Siva temple.

Chingleput was constituted a municipality in October, 1896. The receipts and expenditure during the five years ending with 1902–3 averaged Rs. 13,000. In 1903–4 they were Rs. 17,500 and Rs. 15,300 respectively. The income is chiefly derived from house and land taxes and from tolls. The health of the town is generally good, and the climate, except during the height of the hot winds, moderately cool. It is almost entirely surrounded by hills, none of them much exceeding 500 feet in height; and these, together with the large tank near the fort already mentioned, and the several lesser sheets of water, make it a very picturesque spot, especially after the rains. The big tank is 2 miles long by 1 mile broad, and has been formed by banking up the drainage of the country for 10 miles to the northward. The supply thus received is far in excess of what is required for the irrigation of the 200 acres which are dependent upon it; and it consequently contains a supply even in the hot season, when other tanks have long since run dry.

Chingleput contains the Reformatory School of the Presidency. This was established in October, 1881, and is intended for the reception of juvenile offenders whom it is undesirable to subject to the risk of contamination by the more hardened criminals of the regular jails. It was for some years under the control of the Inspector-General of Prisons, but in 1888 was transferred to the Director of Public Instruction. Boys are taught useful trades which may enable them to earn an honest livelihood when their term in the school has expired, and endeavours are made to find them employment and keep touch with them after they have left the school. The industries taught include drawing, carpentry, and wood-carving, work in iron and other metals, weaving, and tailoring. The school has been a great success.

Conjeeveram Town (*Kānchīpuram*).—Head-quarters of the *tāluk* of the same name in Chingleput District, Madras, situated in 12° 50′ N. and 79° 42′ E., 45 miles west-south-west of Madras city on the branch line between Arkonam and Chingleput. It had a population in 1901 of 46,164: namely, 44,684 Hindus, 1,313 Musalmāns, 49 Christians, and 118 Jains. The real name of the town is Kānchi or Kānchīpuram, and the English form is merely a corruption of this. It is one of the most ancient towns in Southern India, and in the early centuries of the Christian era was the capital of the dynasty of the Pallavas. In the seventh century Hiuen Tsiang, the Chinese pilgrim, visited it, and he says the city was 6 miles in circumference and the people in it superior in bravery and piety, as

well as in their love of justice and veneration for learning, to many others whom he met with in his travels. Jains were very numerous in his day, and Buddhists and Brāhmans of about equal influence. The town passed to the Cholas in the eleventh century. Conjeeveram became the capital of Tondamandalam, and continued in the hands of the Cholas until they were overthrown by the Musalmāns of the north in 1310. When the Vijayanagar kings came into power they speedily annexed the town. It was taken from them by the Musalmāns in 1646; the Marāthās succeeded in 1677; they were ousted by Aurangzeb's army shortly after; and it remained in the possession of the Musalmāns till 1752, when Clive took it from them in the wars with the French. In 1757 the French, beaten off in an attack upon its great temple, set fire to the town. In 1758 the English garrison was temporarily withdrawn on account of the expected advance of the French upon Madras, but was soon sent back with reinforcements, and during the siege of the capital and the subsequent wars the place played an important part.

Conjeeveram is now accounted by Hindus as one of the holiest places in the South, and it is indeed placed among the seven sacred cities of India. It is crowded with temples and shrines. The old Jain temple is situated in the hamlet of Tirupparuttikunram, about 2 miles south of the weaver quarter of Conjeeveram, called Pillapālaiyam. Its florid architecture and the artistic merit of some of the details, notably of the sculptures in the cloistered court which surrounds it, and of the colouring of the paintings on the ceilings, lead to the assumption—confirmed by inscriptions on the walls—that it belongs to the period when the Chola power was at its zenith. The Vijayanagar monarchs made several grants of land to this temple during the fourteenth, fifteenth, and sixteenth centuries. The inscriptions are very valuable for historical purposes, as they appear to commemorate gifts by almost the entire succession of dynasties who held the country for any length of time. The Vaikuntha Perumāl temple to Vishnu and the Saiva temple of Kailāsanāthar appear from inscriptions to have been built by the Pallava kings. Two others were built about 1509 by Krishna Deva, the greatest of the Vijayanagar rulers, and many of the smaller shrines and rest-houses are due to the piety of members of the same dynasty. The great temple has tall towers, a hall of 1,000 columns, several large and fine porches, and great tanks with flights of stone steps. But these are all thrown together as if by accident, and form no consistent

plan. Fergusson says that in it 'no two *gopurams* [towers] are opposite one another, no two walls parallel, and there is hardly a right angle in the place. All this creates a picturesqueness of effect seldom surpassed in these temples, but deprives it of that dignity we might expect from such parts if properly arranged.' The Varadarājaswāmi Vaishnava temple is notorious for the bitter disputes which occur between the Tengalai and Vadagalai sub-sects who are connected with its worship. These have been going on for a century or more, and the litigation regarding them has proceeded as far as the Privy Council. Decisions have been given, but the interpretation to be placed upon these still gives occasion for threatened breaches of the peace.

Conjeeveram was constituted a municipality in 1866. The receipts and expenditure during the ten years ending with 1902-3 averaged Rs. 86,000 and Rs. 77,000 respectively. In 1903-4 the income was Rs. 59,000, mostly derived from the taxes on houses and land and the water rate; and the expenditure was Rs. 54,000. A scheme for the supply of good drinking-water was begun in 1895-6, and completed in two years at a total cost of Rs. 2,56,000. The water is obtained from the subterranean springs of the Vegavati river, in the bed of which an infiltration gallery 330 feet long, 12 feet deep, and 8 feet broad, has been constructed. The water flows into a reservoir constructed at the end of the gallery, and thence passes into a well through a steel pipe. From this well it is pumped into the town by two steam engines which are worked by turns. They are capable of supplying 840,000 gallons of water daily, but the actual consumption is only about half of this quantity. The annual cost of the establishment maintained is Rs. 2,600. Superior *sārīs* of silk and cotton such as the native women wear are made at Conjeeveram.

Cooum (*Kūvam*).—River in Madras, formed by the junction of the surplus waters of a tank in the village of Kūvam in the Conjeeveram *tāluk* of Chingleput District and the old Bangāru channel. It irrigates Kadambuttūr, Tinnanūr, and other villages, and from a dam thrown across it at Korattūr sends down a supply to the Chembrambākam tank through the new Bangāru channel. It then irrigates Vayanallūr, Ayanambākkam, and other villages of the Saidapet *tāluk*, and finally flows through the heart of Madras city into the Bay of Bengal near Fort St. George. In the latter part of its course the stream (except in the rains) is insufficient to keep an open channel, and a sand-bar forms across the mouth, converting the river into a brackish lagoon. At present some of the sewage

of Madras passes into this, and the stream has thus obtained an unsavoury reputation. The new drainage scheme for the city will, however, remove the sewage to a farm to the north, and effect, it is hoped, a great improvement in the present condition of the lower reaches of the river.

Covelong (*Kovalam*).—Village in the *tāluk* and District of Chingleput, Madras, situated in 12° 47′ N. and 80° 15′ E., on the east coast about 20 miles south of Madras city. Population (1901), 1,921. It was originally a Dutch settlement, and the Imperial East India Company of Ostend seems to have had a trading station here and to have built a fort. There are now no traces of either. The ruins at present in existence belong to the fort called Saādat Bandar, built by Anwar-ud-dīn Khān, Nawāb of the Carnatic from 1744 to 1749. In 1750 this was seized by stratagem by the French. A party of soldiers with arms concealed under their clothes and simulating extreme sickness were admitted into the fort by the kindly natives, who believed their tale that they were the scurvy-smitten crew of the ship which had just anchored off the coast, unable to proceed. During the night they rose and overpowered the garrison. In 1752 Clive invested the place and the French surrendered without firing a shot. The fortifications were then blown up. Covelong contains a Catholic church, an almshouse, and an orphanage founded and supported by a grant from the De Monte family, formerly rich merchants of Madras. At the present day the place depends almost entirely on the manufacture of salt. The pans lie to the west of the village, and are of large extent.

Ennore.—Village in the Ponneri *tāluk* of Chingleput District, Madras, situated in 13° 13′ N. and 80° 19′ E., on the shore of the Bay of Bengal and on the Madras Railway. Population (1901), 3,192. Its proper name is Kattivākkam. It was once a favourite resort for Europeans from Madras, and contains several bungalows, built on the strip of land between the sea and the backwater, in which they used to stay; but it has ceased to have any attractions, owing to the prevalence in recent years of virulent malarial fever. Ennore is now only a fishing village and a centre of salt manufacture. The sand dunes along the coast at this point, which cover an area of about 20,000 acres, have been almost all taken up by private persons and converted into casuarina plantations. This tree yields rapid returns, attaining, in favourable localities, its full growth in about fifteen years; and as there is a large and increasing demand for firewood in Madras, the enterprise has

attained such proportions as to change materially the physical aspect of long stretches of the coast in this neighbourhood.

Karunguli.—Village in the Madurāntakam *tāluk* of Chingleput District, Madras, situated in 12° 32′ N. and 79° 54′ E., on the South Indian Railway and on the southern trunk road, 48 miles from Madras city. Population (1901), 4,065. It was the head-quarters of the District from 1795 to 1825, and subsequently continued for some years to be the head-quarters of a *tāluk*. Karunguli fort was occupied as a strategic point during the wars between the English and the French, being regarded as an outpost of Chingleput, from which it is 15 miles distant to the south-west. These two places, with Wandiwāsh and Uttaramerūr, formed a sort of quadrilateral, on the line of attack between the seats of the two Governments of Madras and Pondicherry. As early as 1755 it was a point of dispute. In 1757 it was evacuated by the English in the face of advancing French troops. The following year the English attempted to recover it by surprise, but were repulsed with loss, a failure which was repeated in 1759. But some months later Colonel Coote, after a few days' bombardment, captured the fort. This was the first decisive action in the successful campaign of 1759–60, which led to the victory at Wandiwāsh. The circumference of the fort is 1,500 yards, enclosing the remains of what were apparently huge granaries for the storage of grain, the tribute to the Muhammadan government out of the produce of the neighbourhood. The Karunguli tank, which is fed from the overflow of the Madurāntakam tank, usually receives a plentiful supply of water. A travellers' bungalow stands in the village, a handsome old building in a grove of fine mango-trees.

Madurāntakam Town.—Head-quarters of the *tāluk* of the same name in Chingleput District, Madras, situated in 12°31′ N. and 79° 53′ E., 50 miles south-west of Madras city on the southern trunk road. With its hamlet Kadapperi it contains 6,320 inhabitants (1901), almost all of whom are connected with the cultivation of the land irrigated from the great tank which takes its name from the village. A large number of the landholders are Vaishnavite Brāhmans. This tank is the only noteworthy feature in the place. It is formed by damming up a small river called the Kiliyār, which rises in the hill at Wandiwāsh, and is one of the most important irrigation works in the District. It owes its existence in its present form to Mr. Place, who was Collector at the end of the eighteenth century. He connected and strengthened the banks of two smaller tanks

which he found here, and converted them into one large tank with a surplus weir at the northern end. This weir is one of the finest works of its kind in the country, and is built in the form of a waved line, the height from the crest to the bed of the river below being 30 feet. The southern portion especially is a very curious and beautiful specimen of masonry. Instead of being built in steps, the descent is formed to imitate the curve which the flood-water takes in a fresh, and huge blocks of granite have been hewn into this curve and are bound into their places with lead. An inscription on the pillar at the northern end records that the tank was completed by Mr. Place in 1798, after having been twice carried away, and gives details as to the cost, &c. As originally designed by Mr. Place, the tank was constructed to irrigate five villages, besides Madurāntakam, through the four sluices in its bank, and to supply the tank of Karunguli by a channel, about one-fourth of a mile in length, mostly cut through rock. The surplus weir was subsequently raised 2 ft. 3 in., and this channel was carried 2 miles farther on from the weir of the Karunguli tank as far as Sanūr.

Pallāvaram.—Town and cantonment in the Saidapet *tāluk* of Chingleput District, Madras, situated in 12° 59′ N. and 80° 10′ E., on the South Indian Railway, 3 miles south of St. Thomas's Mount. Population (1901), 6,416. It used to be called the Presidency Cantonment, native troops being kept here for garrisoning and protecting the Presidency town. The temperature of the place is high, but it is far from being unhealthy, and water is good and abundant. Pallāvaram is now a place of residence for European pensioners and a dépôt for native infantry. It used to contain several tanneries, but the industry has declined in consequence of the introduction in America of the superior process of chrome tanning.

Perambākkam.—Village in the Conjeeveram *tāluk* of Chingleput District, Madras, situated in 12° 51′ N. and 79° 35′ E., about 14 miles north-west of Conjeeveram town. Population (1901), 1,117. Near here occurred, in 1780, the defeat of Colonel Baillie's force by Haidar Alī, one of the most severe reverses which ever befell the British arms in India. Sir Hector Munro, the Madras Commander-in-Chief, had directed Baillie, who had 2,800 men with him, to meet him at Conjeeveram. Haidar received intelligence of the plan and set out to intercept the force. Baillie thereupon sent to Sir Hector for reinforcements, and a detachment was dispatched to him which increased his strength to 3,700 men. Baillie, however, delayed too long in setting out, and was caught by

the whole of Haidar's army in a defile studded by palmyra palms. Here his force was subjected to a cross-fire from fifty guns. Baillie and most of his officers were soon wounded, and eventually the blowing up of two tumbrils of gunpowder in the middle of the square in which the troops were formed started a panic. The English, however, concentrated the small remnant of their men on a little eminence and repulsed thirteen attacks of the enemy during another hour and a half. Baillie then surrendered; but Haidar's men, through some misunderstanding, fired into them none the less, and killed almost all who had still survived. In the Daryā Daulat, Haidar's garden-house on the island of Seringapatam, is a fresco depicting this defeat in quaint native fashion, an exploding tumbril being given a prominent place in the composition. This has been renovated and is in excellent preservation.

Poonamallee.—Town and cantonment in the Saidapet *tāluk* of Chingleput District, Madras, situated in 13° 3′ N. and 80° 7′ E., on the western trunk road, 13 miles west of Madras city and 5 miles north of St. Thomas's Mount. It contains a population (1901) of 15,323 persons, and is the head-quarters of a deputy-*tahsīldār* and a District Munsif. The place was formerly a convalescent dépôt for the troops of the Madras command, a purpose for which it was well suited by its good drainage and general salubrity. It still contains barracks which could accommodate 500 men, but is now only a sanitarium for convalescent European troops. Four hundred yards to the east of the cantonment, which is about half a mile square, is the old fort of Poonamallee, now occupied principally by warehouses, storerooms, and the hospital. It is a Muhammadan work, 175 yards long and 142 broad, surrounded by a rampart 18 feet high. It was of considerable service in holding the country, towards both Madras and Conjeeveram, during the wars of the Carnatic.

Pulicat.—Town in the Ponneri *tāluk* of Chingleput District, Madras, situated in 13° 25′ N. and 80° 19′ E., on the southern extremity of an island which separates the sea from the PULICAT LAKE, 25 miles north of Madras city. Population (1901), 5,448. Pulicat was the site of the earliest settlement of the Dutch on the mainland of India. In 1609 they built a fort here and called it Geldria, and in 1619 the English obtained from the chiefs a permission to share in the pepper trade of Java. Later, it was the chief Dutch settlement on the Coromandel coast. It was taken by the English in 1781; restored in 1785 to Holland under the treaty of 1784,

and again surrendered by the Dutch in 1795. In 1818 Pulicat was handed over to Holland by the East India Company under the Convention of the Allied Powers in 1814; in 1825 it was finally ceded to Great Britain by the treaty of March, 1824. The only relics of Dutch authority now remaining are the curious and elaborate tombs in their old cemetery, which are maintained at Government expense. The town was formerly a centre of trade to Penang and the Straits, but this has now ceased. It was also once a sanitarium much frequented by residents of Madras, but the prevalence of malarial fever put it out of favour. The place is now comparatively deserted, and is inhabited chiefly by the Muhammadan trading community of Labbais. The only trade now carried on is managed by these people. It consists chiefly of the export of woven cloth, dried fish, and prawns. The Hindus of the town are for the most part very poor and earn their livelihood by fishing and daily labour. The old Roman Catholic church here attracts large crowds from Madras and elsewhere to one of its annual feasts.

Sadras.—Village on the coast of the *tāluk* and District of Chingleput, Madras, situated in 12° 31′ N. and 80° 10′ E., about 35 miles south of Madras city and connected with it by the Buckingham Canal. Population (1901), 1,564. Sadras became a trading settlement of the Dutch in 1647, and was long famous for the fine muslin produced by its looms. The Dutch erected, close to the shore, a brick fort of considerable extent and pretensions to strength, of which the ruins still stand. There are also the remains of the houses of the officials, one of which has long been in use as a halting-place for European travellers. The old Dutch cemetery within the fort, which contains curious and elaborate tombs, is maintained in order by Government. A Dutch church stands on the esplanade opposite the fort. A few weavers still live in the place, but the cunning which produced the once famous fabrics is forgotten. The rest of the inhabitants are cultivators, and the place is now only a sleepy little village. Sadras was taken by the English in 1795, but was given back to the Dutch in 1818. It finally returned to British hands in 1825 along with the rest of the Dutch settlements in India.

Saidapet Town.—Head-quarters of the *tāluk* of the same name and of Chingleput District, Madras, situated in 13° 2′ N. and 80° 13′ E., 5 miles from Fort St. George. Population (1901), 14,254. The District head-quarters have been located here since 1859. The Collector's office and treasury are in a

building called Home's Gardens, which has of late been much enlarged and improved, and which also contains the offices of a Deputy-Collector and of the *tahsīldār* and stationary sub-magistrate. The place is practically a suburb of Madras, and as the South Indian line connects it with the business quarters of that city it is the residence of many officials and others. Weaving and dyeing are its chief industries. The handsome Marmalong bridge across the Adyar river, built in the early days of Madras by an Armenian merchant named Petrus Uscan, connects the place with St. Thomas's Mount. This has an endowment in Government securities, the interest on which is utilized for its repair and for the up-keep of the steps leading up the Mount.

The most notable institutions in Saidapet are the Agricultural College and the Teachers' College. The latter is under the management of a European principal, aided by a staff of assistants, and is designed to instruct persons who are taking up teaching as a profession in the theory and practice of that art. A high school is attached to give the students an opportunity of practising, and there is also a well-equipped gymnasium. The Agricultural College originated as a model farm, established in 1865, during the Governorship of Sir William Denison. In this many important agricultural experiments were made, some of which produced encouraging results, indicating the general directions in which improvements might be effected in the agriculture of the country. Attention was given to subsoil drainage, improved tillage, the restoration of exhausted soils, the proper utilization of irrigation water, the fertilization of arable soils by the use of lime, saltpetre, oil-cake, poudrette, and other manures available in Southern India, but little used by the ryots; the introduction of new crops suited to the climate and adapted for cultivation under an improving agricultural practice; the production of live fences to afford protection from cattle, shelter from wind, and fuel; the introduction of water-lifts, barn machines, carts, ploughs, cultivators, cattle-houses, reaping-knives, &c., of improved construction; and the improvement of the live-stock of the country by careful feeding and breeding and by acclimatizing new breeds. In 1876 a school of agriculture was opened to extend the practical utility of the experiments. The institution was later raised to the status of a college, and a handsome building and museum have been erected. A chemical laboratory is attached to it and a veterinary hospital has been opened. The college is intended to afford instruction to

persons who desire to become acquainted with the theory and practice of agriculture, and is under the charge of a principal, a vice-principal, and five assistants. Experimental work at the farm has now been given up, the cropping done being no more than is necessary for educational purposes, but other experimental farms have been established in more suitable localities. The college itself is shortly to be transferred to a more suitable site at Coimbatore.

St. Thomas's Mount.—Town and cantonment in the Saidapet *tāluk* of Chingleput District, Madras, situated in 13° N. and 80° 12′ E., 8 miles south of Madras city. Population (1901), 15,571. It is known to the natives as Parangimalai, or 'Europeans' hill.' The Mount after which the place is named is composed of greenstone and syenite, and is ascended by a flight of 200 masonry steps, the work of the Portuguese. On its summit, 220 feet above sea-level, is a curious old Portuguese church dedicated to the Expectation of the Blessed Virgin. It was built by the Portuguese in 1547, over the spot where was found the celebrated cross attributed to the legendary visit of St. Thomas the Apostle to this part of India. The tradition[1] states that after preaching in Malabar and other places, St. Thomas came to Mylapore, a suburb of Madras; that the Brāhmans there stirred up a tumult against him, and that on December 21, A. D. 68, he was stoned by the crowd and finally thrust through with a spear near the Mount. Lucena gives the following account of the finding of the cross:—

'It was met with on digging for the foundations of a hermitage amid the ruins which marked the spot of the martyrdom of the Apostle St. Thomas. On the face of the slab was a cross in relief, with a bird like a dove over it, with its wings expanded as the Holy Ghost is usually represented when descending on our Lord at His baptism, or on our Lady at her Annunciation. This cross was erected over the altar at the chapel which was built on the new sanctuary.'

Dr. Burnell (*Indian Antiquary*, 1874, p. 313) says:—

'This account is no doubt accurate, for the Portuguese on first visiting the Mount found the Christian church in ruins, and occupied by a native *fakīr*. The description of the slab is also accurate. It does not appear what cause had destroyed the Christian community here, but it probably was owing to the political disturbances attending the war between the Muhammadans of the north and the Hindu kingdom of Vijayanagar.'

[1] Discussions of the credibility of this tradition will be found in the *Indian Antiquary*, vol. xxxii; in the *Journal of the Royal Asiatic Society* for April, 1905; and in *India and the Apostle Thomas* (1905), by the Rev. A. E. Medlycott, Bishop of Tricomia.

Referring to an Italian account (in the seventeenth century) of the cross and the Mount festival, Dr. Burnell continues:—

'The cross is built into the wall behind the altar in a church on the Great Mount, which is served by a native priest under the Goa jurisdiction. An annual festival is held here, which brings a large assemblage of native Christians to the spot, and causes an amount of disorder which the European Catholic clergy of Madras have in vain tried to put down.'

Dr. Burnell considered that the date of the cross tablet and its Pahlevī inscription was probably about the eighth century.

On the plain on the eastern side of the Mount lies the military cantonment bearing the same name. The garrison now consists of two batteries of field artillery and one regiment of native infantry. The cantonment is a pretty place and well kept. In the centre is an open grassy *maidān*, round which cluster the various bungalows and other buildings, including the handsome mess-house of the artillery. The church, which stands at the southern end of the parade ground, is one of the best edifices of its kind in the Province.

St. Thomas's Mount figured in British history long before it was made a cantonment. The battle of the Mount, fought on February 7, 1759, was one of the fiercest struggles of the Franco-British wars in India. It is thus described in the Chingleput *Manual*:—

'Colonel Calliaud had been summoned from the south to assist in raising the siege of Madras. He took post at the Mount, with his right at a deserted little temple at the north-east of the present parade ground, and his left supported by a house called Carvalho's Garden, where he posted four pieces of cannon. His troops included the contingent brought by the Company's partisan Muhammad Yūsuf, and consisted of 2,200 horse, 2,500 foot, and 6 cannon. Of these, however, only 1,500 natives, 80 Europeans, and 12 artillerymen were possessed of the slightest discipline. Lally's forces aggregated 2,600, half of whom were Europeans, and all disciplined. He had, besides, 8 guns, possessing a great superiority in weight of metal. The fight lasted from early morning till 5 p.m., when the enemy, to Colonel Calliaud's intense relief, retreated. The latter had ammunition sufficient to have lasted for about a couple of minutes more.'

On March 20, 1769, Haidar Alī, who had marched within 5 miles of Madras, met here Mr. Dupré, the Senior Member of Council, and here the inglorious treaty of April 2 was signed. In 1774, at the suggestion of Col. James, the Mount became the head-quarters of the Madras Artillery.

'The garrison of the Mount formed the major part of the

force (under Sir Hector Munro) that ought to have saved Baillie in 1780. During its absence, only five companies of Sepoys and four guns had been left for the protection of the Mount, and a temporary earthwork was raised to strengthen the place against attack. This has long been levelled, but a slight depression crossing the plain midway between Pallāvaram and the Mount indicates the position of what went by the name of the Marāthā Ditch.'

Sembiem.—Town in the Saidapet *tāluk* of Chingleput District, Madras, situated in 13° 7′ N. and 80° 16′ E. Population (1901), 17,567. It lies near the Perambūr railway station of the Madras Railway and just beyond the limits of the Madras municipality, and within it are the Perambūr railway workshops, which employ 4,500 hands. It is consequently almost a suburb of Madras, and being a healthy locality, with good water, is growing rapidly in population. There is a considerable Eurasian community in the place. It contains ten small paper-making establishments, which give employment to about a dozen hands apiece.

Seven Pagodas.—Village in the *tāluk* and District of Chingleput, Madras, situated in 12° 37′ N. and 80° 12′ E., 35 miles south of Madras city, on the Buckingham Canal, between it and the sea. Population (1901), 1,229. The vernacular name is variously spelt as Mahābalipur, Mahāvellipur, Māvallipur, Māmalaipur, Māmallapur, and Mallapur. The disputations regarding its form are discussed in Major M. W. Carr's book regarding it and in Mr. Crole's *Manual* of the District.

The village itself is insignificant, but near it are some of the most interesting and, to archaeologists, the most important architectural remains in Southern India. These antiquities may be divided into three groups: the five so-called *raths* (monolithic temples) to the south of the village, belonging perhaps to the latest Buddhist period; the cave temples, monolithic figures, carvings, and sculptures, west of the village, perhaps of the sixth or seventh century, which contain some marvellous reliefs, ranking with those of Ellora and Elephanta; the more modern temples of Vishnu and Siva, the latter being washed by the sea. To these last two, with five other pagodas buried (according to tradition) under the sea, the place owes its English name. Who were the authors of the older of these constructions is a question which cannot be considered to be definitely set at rest. Mr. Sewell, after examining the question in its different aspects, concludes by observing that exactly at the period when, according to the style of architecture, as judged by the best authorities, we find a northern race tempo-

rarily residing at or near this place, sculpturing these wonderful relics and suddenly departing, leaving them unfinished, inscriptions give us the Chālukyas from the north conquering the Pallava dynasty of Kānchi, temporarily residing there and then driven out of the country, after a struggle, permanently and for ever. Everything, therefore, would seem to point to the Chālukyas of Kalyānapura as being the sculptors of the Seven Pagodas. Mr. Crole describes the antiquities as follows:—

'The best, and by far the most important, of its class is the pastoral group in the Krishna *mantapam*, as it is called. The fact is, that it represents Indra, the god of the sky, supporting the clouds[1] with his left hand, to protect the cattle of Bala from the fury of the Maruts or tempest demons. Near him, the cattle are being tended and milked. To the right, a young bull is seen, with head slightly turned and fore-foot extended, as if suddenly startled. This is one of the most spirited and lifelike pieces of sculpture to be seen anywhere.

'A little to the north of this is the great bas-relief which goes by the name of "Arjuna's Penance." It covers a mass of rock 96 feet in length and 43 feet in height, and is described by Fergusson as "the most remarkable thing of its class in India." "Now," says he, "that it is known to be wholly devoted to serpent-worship, it acquires an interest it had not before, and opens a new chapter in Indian mythology. There seems nothing to enable us to fix its age with absolute certainty; it can hardly, however, be doubted that it is anterior to the tenth century, and may be a couple of centuries earlier."

'Near the stone choultry by the side of the road, and a little to the north of the rock last described, stands a well-executed group lately exhumed, representing a couple of monkeys catching fleas on each other after the manner of their kind, while a young one is extracting nourishment from the female.

'Near this point, a spectator, looking southwards, may see, formed by the ridges on which the caves are cut, the recumbent figure of a man with his hands in the attitude of prayer or meditation. This figure measures at least 1,500 feet long, the partly natural resemblance having been assisted by the rolling away of rocks and boulders. On the spot, this is called the "Giant Rājā Bali," but it is no doubt the work of Jains.

'The whole of this ridge is pitted with caves and temples. There are fourteen or fifteen Rishi caves in it, and much carving and figuring of a later period. These are distinguished by the marked transition from the representations of scenes of peace to scenes of battle, treading down of opposition and destruction, the too truthful emblems of the dark centuries of religious strife which preceded and followed the final expulsion of the Buddhists. Their age is not more than 600 or 700 years; and

[1] More correctly, Kṛishna supporting a hill; see GIRI RĀJ.

the art is poor, and shows as great a decadence in matter as in religion. The representations are too often gross and disgusting, and the carving stiff and unnatural—entirely wanting in ease and grace and truth to nature.

'Behind this ridge, and near the canal, are two more of the monolithic *raths*, and one similar in form, but built of large blocks of stone.

'The last period is represented by the Shore Temple, the Varāhaswāmi Temple in the village, and by some of the remains in a hamlet called Sālewankuppen, 2 miles to the northward. In the two former there is little distinguishable in construction and general plan from similar buildings to be found everywhere in the South.'

Mr. Fergusson discusses the architectural aspects as follows:—

'The oldest and most interesting group of monuments are the so-called five *raths*, or monolithic temples, standing on the sea-shore. One of these, that with the apsidal termination, stands a little detached from the rest. The other four stand in a line north and south, and look as if they had been carved out of a single stone or rock, which originally, if that were so, must have been between 35 feet and 40 feet high at its southern end, sinking to half that height at its northern extremity, and its width diminishing in a like proportion.

'The first on the north is a mere *pansala* or cell, 11 feet square externally, and 16 feet high. It is the only one, too, that seems finished or nearly so, but it has no throne or image internally, from which we might guess its destination.

'The next is a small copy of the last to the southward, and measures 11 feet by 16 feet in plan, and 20 feet in height. The third is very remarkable; it is an oblong building with a curvilinear-shaped roof with a straight ridge. Its dimensions are 42 feet long, 25 feet wide, and 25 feet high. Externally it seems to have been completely carved, but internally only partially excavated, the work being apparently stopped by an accident. It is cracked completely through, so that daylight can be seen through it, and several masses of the rock have fallen to the ground. This has been ascribed to an earthquake and other causes. My impression is that the explanation is not far to seek, but arose from unskilfulness on the part of workmen employed in a first attempt. Having completed the exterior, they set to work to excavate the interior, so as to make it resemble a structural building of the same class, leaving only such pillars and supports as were sufficient to support a wooden roof of the ordinary construction. In this instance, it was a mass of solid granite which, had the excavation been completed, would certainly have crushed the lower storey to powder. As it was, the builders seem to have taken the hint of the crack, and stopped the further progress of the work.

'The last, however, is the most interesting of the series. Its dimensions are 27 feet by 25 feet in plan, 34 feet in height.

Its upper part is entirely finished with its sculptures, the lower merely blocked out. It may be that, frightened by the crack in the last-named *rath*, or from some other cause, they desisted, and it still remains in an unfinished state.

'The materials for fixing the age of this *rath* are, first, the palaeographic form of the characters used in the numerous inscriptions with which it is covered. Comparing these with Prinsep's alphabets, allowing for difference of locality, they seem certainly to be anterior to the seventh century. The language, too, is Sanskrit, while all the Chola inscriptions of the tenth and subsequent centuries are in Tamil, and in very much more modern characters. Another proof of antiquity is the character of the sculpture. We have on this *rath* most of the Hindu Pantheon, such as Brahmā and Vishnu; Siva, too, appears in most of his characters, but all in forms more subdued than to be found elsewhere. The one extravagance is that the gods have generally four arms—never more—to distinguish them from mortals; but none of the combinations or extravagances we find in the caves here, as at Ellora or Elephanta. It is the soberest and most reasonable version of the Hindu Pantheon yet discovered, and consequently one of the most interesting, as well, probably, as the earliest.

'None of the inscriptions on the *raths* have dates; but from the mention of the Pallavas in connexion with this place, I see no reason for doubting the inference drawn by Sir Walter Elliot from their inscriptions—"that the excavations could not well have been made later than the sixth century." Add to all this, that these *raths* are certainly very like Buddhist buildings, and it seems hardly to admit of doubt that we have here petrifactions of the last forms of Buddhist architecture, and the first forms of that of the Dravidian.

'The want of interiors in these *raths* makes it sometimes difficult to make this as clear as it might be. We cannot, for instance, tell whether the apsidal *rath* was meant to reproduce a *chaitya* hall, or a *vihārā*. From its being in several storeys, I would infer the latter; but the whole is so conventionalized by transplantation to the South, and by the different uses to which they are applied for the purposes of a different religion, that we must not stretch analogies too far.

'There is one other *rath*, at some distance from the others, called "Arjuna's Rath," which, strange to say, is finished, or nearly so, and gives a fair idea of the form their oblong temples took before we have any structural buildings of the class. This temple, though entered in the side, was never intended to be pierced through, but always to contain a cell. The large oblong *rath*, on the contrary, was intended to be open all round; and whether, consequently, we should consider it as a choultry or a *gopuram* is not quite clear. One thing, at all events, seems certain—and it is what interests us most here—that the square *raths* are copies of Buddhist *vihārās*, and are the originals from which all the *vimānas*

in Southern India were copied, and continued to be copied nearly unchanged to a very late period. . . . On the other hand, the oblong *raths* were halls or porticoes with the Buddhists, and became the *gopurams* or gateways which are frequently, indeed generally, more important parts of Dravidian temples than the *vimānas* themselves. They, too, like the *vimānas*, retain their original features very little changed to the present day.

'The other antiquities at Mahābalipur, though very interesting in themselves, are not nearly so important as the *raths* just described. The caves are generally small, and fail architecturally, from the feebleness and tenuity of their supports. The Southern cave-diggers had evidently not been grounded in the art like their Northern compeers, the Buddhists. The long experience of the latter in the art taught them that ponderous masses were not only necessary to support their roofs, but for architectural effect; and neither they nor the Hindus who succeeded them in the North ever hesitated to use pillars of two or three diameters in height, or to crowd them together to any required extent. In the South, on the contrary, the cave-diggers tried to copy literally the structural pillar used to support wooden roofs. Hence, I believe, the accident to the long *rath*; and hence certainly the poor and modern look of all the Southern caves, which has hitherto proved such a stumbling-block to all who have tried to guess their age. Their sculpture is better, and some of their best designs rank with those of Ellora and Elephanta, with which they were, in all probability, contemporary. Now, however, that we know that the sculptures in Cave No. 3 at Bādāmi were executed in the sixth century (A.D. 579), we are enabled to approximate to the date of those in the Mahābalipur caves with very tolerable certainty. The Bādāmi sculptures are so similar in style with the best examples there, that they cannot be far distant in date; and if placed in the following century it will not, probably, be far from the truth.'

A number of coins of all ages have been found in the neighbourhood, among others Roman, Chinese, and Persian. A Roman coin, damaged, but believed to be of Theodosius (A.D. 393), formed part of Colonel Mackenzie's collection. Others have been found on the sandhills along the shore south of Madras city.

Srīperumbūdūr.—Town in the Conjeeveram *taluk* of Chingleput District, Madras, situated in 12° 59′ N. and 79° 57′ E., on the western trunk road 25 miles west-south-west of Madras city. Population (1901), 5,481. It is important as the birthplace, about A.D. 1016, of Srī Rāmānujāchārya, the great religious reformer of the Vaishnava sect. A shrine to him in the town attracts an immense number of pilgrims from all India. It

is executed in the beautiful style of the early Vijayanagar architecture, and the sculpture is excellent. Rāmānuja, a Brāhman by birth, was noted even as a boy for his studious habits and meditative reserve. When a youth he went to Conjeeveram to study under Yādava Prakāsa, the great teacher of the Advaita system of thought, which was adopted mostly by the devotees of Siva. But he grew to differ from his master, and attaching himself to the then rising Vaishnavite creed wrote commentaries embodying the principles of what is known as the Visishta-Advaita philosophy, or 'qualified non-dualism.' In contradistinction to the professors of the Advaita doctrine, he held that the divine soul and the human soul are not absolutely one, but are closely connected. According to him, everlasting happiness was not to be obtained by knowledge alone, however profound; a devout observance of public and private worship was likewise essential. His culture and personal charm drew around him a host of disciples, and in his lifetime he founded no less than 700 colleges, and sought to secure the permanence of his system by establishing 89 hereditary priestships. Several of these still exist. While returning to Srīrangam from a tour, he was confronted by an edict of the Chola king requiring the signature of all Brāhmans in his dominions to a profession of the Saivite religion. Rāmānuja resisted and fled, and found an asylum with Vittala Deva, the Jain king of Mysore, whom he converted. After twelve years in Mysore, the death of the Chola king enabled Rāmānuja to return to Srīrangam, where he died.

Tirukkalikkunram (otherwise called Pakshitīrtham).—Town in the *tāluk* and District of Chingleput, Madras, situated in 12° 36′ N. and 80° 3′ E., on the road from Chingleput to Sadras, about half-way between the sea-coast and the former town. Population (1901), 5,728. Near it is a ridge terminating in a peaked hill 500 feet above the sea-level, on which stands a temple dedicated to Siva. This is an important place of pilgrimage. The name Tirukkalikkunram means 'hill of the sacred kites,' and was doubtless originally given to this ridge and its shrine, whence it was afterwards applied to the village below. Every day two birds of the kite species come to the mountain and are fed by a *pandāram* or priest. They are declared to have originally come from Benares. A plunge in the tank called the Pakshitīrtham, or 'bathing place of the birds,' in the village is believed to cure all kinds of diseases, including leprosy. The town is at present entirely inhabited by persons connected with the temple, or by shopkeepers who

cater for the wants of the pilgrims flocking to it from all parts all the year round, and particularly during the various festivals. Charitable gentlemen have constructed rest-houses for the benefit of these devotees.

Tiruvallūr Town.—Head-quarters of the *tāluk* of the same name in Chingleput District, Madras, situated in 13° 8′ N. and 79° 55′ E. Population (1901), 9,092. The station on the Madras Railway of the same name is 3 miles away. The importance of the place is due to its being the head-quarters of the Ahobilam *math*, or religious house, the head of which is the high-priest of the Vadagalai section of Vaishnava Hindus. The town contains four temples, one dedicated to Siva and the other three to Vishnu. The Siva temple is enclosed in a court 940 feet by 701 feet, in the outer walls of which are five *gopurams* or towers of the usual Dravidian pattern. It is evidently much older than the other buildings in this court, which include the usual many-pillared hall (unfinished) and several large porches. As a work of architecture it possesses the faults common to many Dravidian temples. Fergusson says that 'the gateways, irregularly spaced in a great blank wall, lose half their dignity from their positions; and the bathos of their decreasing in size and elaboration as they approach the sanctuary is a mistake which nothing can redeem.' The place where the temple is situated is declared by local tradition to have been a forest called Vikshāranya. In this the five Pāndavas once experienced great want of water, and almost despairing of finding any, they at last came to the spot where the shrine is now situated, and here they saw an emblem of Siva. They prayed to the god, and by his favour a small spring welled up in front of the emblem, from which the Pāndavas quenched their thirst. The Vishnu temple, dedicated to Srī Vīrarāghavaswāmi, attracts large crowds on the days of the new moon. On these occasions a plunge in the waters of the holy tank is supposed to wipe away all sin. Thousands of pounds of molasses are poured by the pilgrims into this tank in fulfilment of their vows. The temple is under the management of the Ahobilam *math*.

Tiruvottiyūr.—Town in the Saidapet *tāluk* of Chingleput District, Madras, situated in 13° 10′ N. and 80° 18′ E., 6 miles north of Fort St. George. The population in 1901 was 15,919, but this figure was greatly enhanced by the fact that a festival was proceeding at the time of enumeration. In it is an ancient Siva temple, containing inscriptions inside and outside the shrine in Grantha characters. It attracts

large crowds of people from Madras city and other places every Friday, and during the Brahmotsavam feast in the month of Māsi (February). The place has a bad name for malaria.

Uttaramerūr.—Town in the Madurāntakam *tāluk* of Chingleput District, Madras, situated in 12° 37′ N. and 79° 46′ E. Population (1901), 10,432. It is an agglomeration of several villages. Tradition says that there was formerly a very ancient town on this site, and remains of the foundations of buildings are occasionally exhumed to this day. It is the head-quarters of a deputy-*tahsīldār* and contains a big tank fed from the Cheyyār. The weekly market, controlled by the local board, is an important affair.

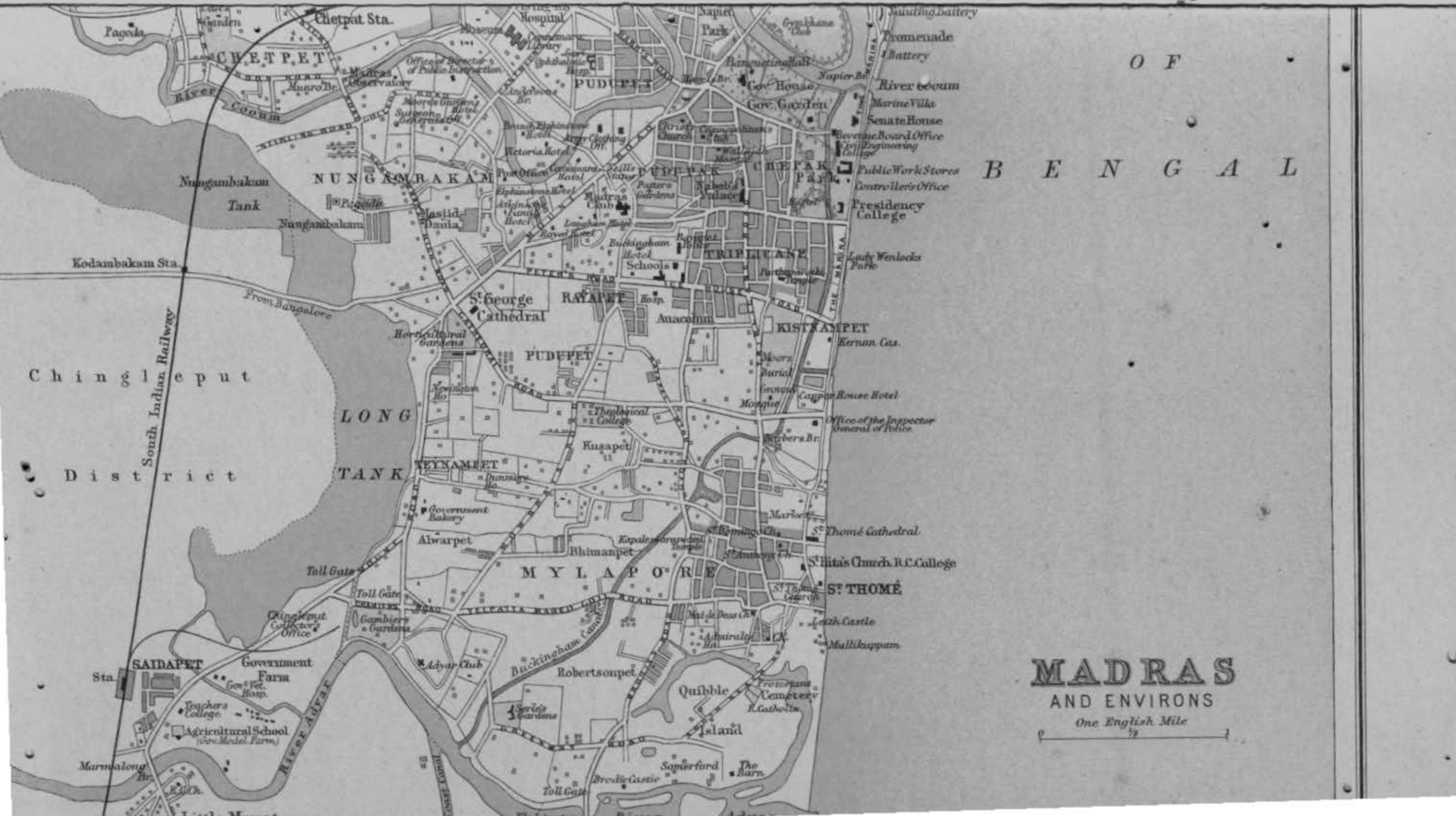
Wālājābād (*Wālājāhābād*).—Town in the Conjeeveram *tāluk* of Chingleput District, Madras, situated in 12° 47′ N. and 79° 50′ E., on the left bank of the Pālār and on the branch railway between Chingleput and Conjeeveram. Also called Dandei Sīvaram. Population (1901), 4,172. The place is named after Muhammad Alī, Nawāb of Arcot, who took the title Wālājāh in 1776. It became a military cantonment about 1786; and for many years afterwards a European regiment, a regiment of native cavalry, and two or three regiments of native infantry were stationed here. The lines were placed along the sides of a gravelly plateau which rises abruptly about 500 yards from the bank of the river, and the native town lay in the low ground between. The centre of the plateau supplied a spacious parade-ground, while the undulating plain behind, stretching away northwards towards Tenneri, afforded ample room for extended manœuvres. On this plain a race-course was laid out, and the ruins of the grand stand still survive. Two of the officers' houses, a few gate-posts, and the cemetery are all the vestiges that now remain of a once bustling cantonment. The place was found to be very unhealthy, and the mortality among the troops became so great that it was called the 'grave of Europeans.' The cantonment was therefore abandoned, but continued up to 1860 to be the head-quarters of a native veteran battalion, the drummer-boy establishment, and details of native sick. Wālājābād still gives its name to the 83rd Regiment of the Indian Army, formerly the 23rd Madras Light Infantry, which bears on its colours 'Seringapatam' and 'Nāgpur.' The unhealthy reputation of the place is still maintained. Outbreaks of cholera are frequent. The houses are tumble-down and squalid. The local board has made vigorous efforts to improve matters by uprooting the dense growth of prickly-pear around the town and raising

and draining the streets. Owing to its position, Wālājābād has long been an emporium for the trade of the surrounding country. Labbai merchants monopolize most of this. Weaving is also carried on, but not with such success as formerly, when Wālājābād chintz was a commodity much in request. Oil, grain, and other agricultural products are now the staple articles of commerce. The Free Church of Scotland maintains two flourishing schools and a hospital in the town.

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